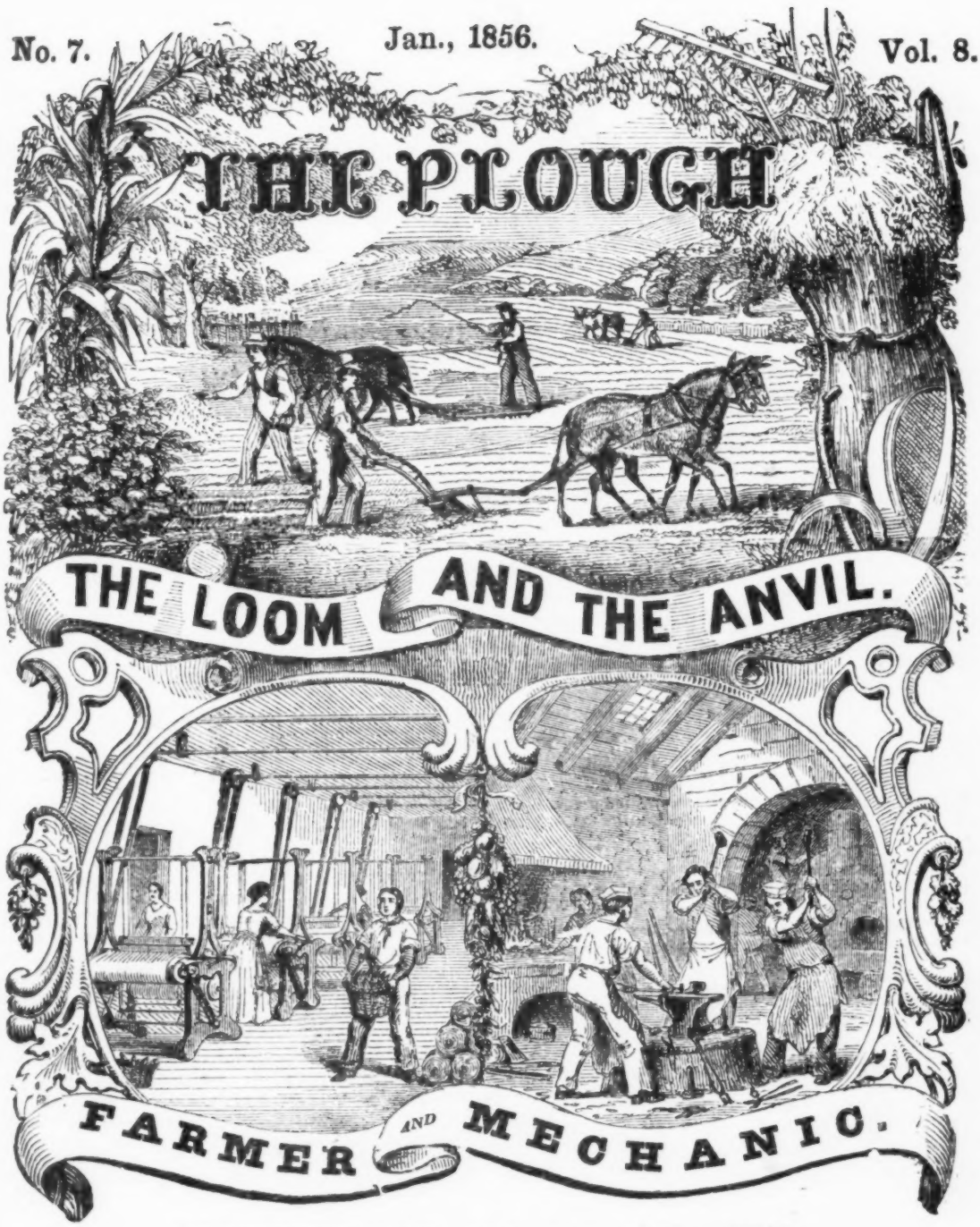
No. 7. Jan., 1856. Vol. 8.



CONTENTS OF NO. 7.—VOL. VIII.

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PUBLISHED AT NO. 9 SPRUCE ST., NEW-YORK.

The Plough, the Loom, and the Anvil,

Is devoted to Scientific and Practical Agriculture, Manufactures, Mechanics, with Designs of Farm Buildings, Cottages, &c.; the best Cultivation of Fruits and Plants; the proper care of Cattle, Horses, Sheep, Hogs, Poultry, Bees, &c. It will point out, also, the true policy to be pursued for the encouragement of American industry, without which there can be no secure foundation for American Independence. It is issued MONTHLY, each number containing SIXTY-FOUR pages of reading matter, with frequent Illustrations, Engravings, &c., at the following

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FOR PRODUCING HAIR ON

BALD HEADS.

This Preparation has never failed to produce a new growth of Hair on Bald Heads, when used according to directions. It is designed expressly for the purpose, whereas, nearly, if not all the various preparations advertised for that purpose are, in reality, designed merely for the toilet, and are composed of oils, alcohol, &c., injurious rather than beneficial to the scalp.

POQUETANNOCK, Conn., Feb. 9, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and now, where my head was bald, it is covered with a new growth of hair."
Capt. GEO. G. BENJAMINS.

POQUETANNOCK, Conn., Feb. 14, 1855.

"This is to certify that I have been using Hurd's Hair Restorer about three months, and where my head was entirely bald, and had been about twenty years, it is covered with a new growth of hair, at least three inches in length."
ALICE ADAMS.

The *Petersburgh (Va.) Intelligencer* says of HURD'S HAIR RESTORER: "This preparation seems to be efficacious for the restoration of the hair upon bald heads. We have seen the testimony of persons well known to us, who have used the compound successfully, thereby corroborating the opinion of its restorative energy."

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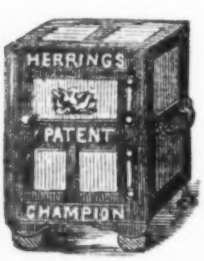
HURD'S HAIR RESTORER is sold at $1, and HURD'S GOLDEN GLOSS at 25 cents per bottle, by Druggists generally.

CHEMICAL MANUFACTURING CO., Proprietors,
293 Broadway, New-York.

Herring's Patent Champion Fire-proof Safes.



With Hall's Patent Powder-Proof Locks, the same that were awarded separate Medals at the World's Fair, London, 1851, and the World's Fair, New-York, 1853 and 1854, and are the only AMERICAN SAFES and Powder-Proof Locks that were awarded medals at the London World's Fair, although OTHERS were on exhibition, AND ARE NOW ADVERTISED as World's Fair Safes and Locks.

THE PATENTEE PLACED $1000 IN GOLD in the one exhibited at the WORLD'S FAIR, London, and invited all the PICK-LOCKS in the WORLD TO OPEN THE SAFE, with or without the keys, and take the money as a reward for their ingenuity. Although operated upon by several skilled in the art, no one could pick the LOCK or open the Safe.

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S. C. HERRING & Co., Green Block,
Nos. 133, 137 & 139 WATER ST.

The Plough, the Loom, and the Anvil.

VOL. VIII. JANUARY, 1856. No. 7.

WHAT CONSTITUTES A PROFITABLE CROP? SOUTHERN POLICY.

THIS is a question which lies at the foundation of all judicious management. It seems also to be a very simple one. We wish our farmers and planters in every section of country would keep proper farm accounts. The labor of it is but small, and the value of it would be great. Let the time spent upon each lot of ground, the manures used upon it, the crops gathered, with the market value of those the prices of which are well known, and the estimated value of those others used as feed, such as corn-stalks, etc., all have their place in the farm record-book; and this would of itself suggest many important changes in the management of many a farm. But let us recur to our inquiry, What constitutes a profitable crop?

There seems to be a very indefinite idea on this subject, particularly among some Southern writers and orators. Were it not for this it might seem superfluous to say that profit, applied to crops, can always be ascertained by the Profit and Loss account of the producer. No matter how many others may be profited by it—no matter how many ships are loaded with it, nor how many companies get rich in the various uses they make of it—their profit and loss account is a different affair, and tests the value of a very different process. One might enrich and work over a dry sand-bank till he could make a good crop of corn upon it, and selling that one crop to his neighbor B. for one-tenth its actual cost, he, neighbor B., might make a very handsome profit on a second sale. This would not make that crop of corn a profitable one. This is plain, even to a child.

Now we ask whether, independently of all collateral matters, such as increased value of lands, advantages of a home market, etc., etc., which would result from a diversity of pursuits, the cotton crop of this country is a paying crop, in comparison with many other agricultural products, raised both at the North and South?

In our last issue we set forth the facts of the case as far as we had the means at hand. We there found that the prevailing price of cotton for many years, at the seaboard, is eight cents a pound; and from all the statements there set forth, from cotton growers and statistical tables, we found that it actually costs nearly, if not quite, that amount. But take another view.

The whole quantity of land cultivated with this crop is estimated at 5,000,000 acres, and if the gross value of the crop is $100,000,000, the gross product of an acre is $20. Can that be called successful husdandry which obtains by a year's toil only this pittance?

It is practically true that every dollar expended in judicious cultivation

and improvement of lands, yields a still greater per cent. in return. The poorest land, and land to which little attention is given, yields the smallest per centage in return. Now laying aside all other considerations, and regarding only the one fact, that almost the entire laboring population of the cotton regions is devoted exclusively to the culture of this crop, might we not infer that such lands were in the best condition, and that they repay the care bestowed upon them with rich and abundant products? The supposition is no sooner made than "twenty dollars an acre" stares you in the face.

Lands are sadly neglected at the North. Much land is used for convenience or otherwise in raising small and unremunerating crops. But who there, would be satisfied with a gross income of twenty dollars to each cultivated acre? On many capital farms, of a hundred acres or more, the quantity of cultivated land is often less than an eighth or a tenth of the total area. To cultivate properly any land, and to almost any crop, requires an outlay of ten or fifteen dollars. At the highest of these, the profit would be but five dollars an acre, and this pittance must pay all the family expenses and the interest of the capital.

That same land, if in good condition, might bring a hundred dollars per acre, under the hammer, and if five dollars is the extent of the profit, the owner therein receives interest on his capital, at five per cent., with nothing for tools, stock, waste, repairs, losses, etc., and the land is annually becoming less and less able to produce. Is that skillful agriculture?

At the North and West the profit actually earned out of the land is earned by only a portion of the working population. In the New-England and Middle States, only about two-thirds the adult males are engaged in agricultural labor. In the Southern States nine-tenths are thus employed, and many females. A large corps of laborers at the North and West are engaged in more lucrative trades than the farmer, while they create a market for what the farmer can sell. Let all those give themselves to agricultural pursuits at home, the quantity of products would be very greatly increased, though the market value might be at a lower rate than it is now. Had the South such a reserve force, with abundance of stock, what a difference there would be in her financial statistics!

There are lands at the North devoted to the culture of various crops, not remunerative, as wheat for example, in which the returns are only some ten or twelve bushels per acre. And yet on those lands the value of the annual harvest will no doubt exceed the sum of twenty dollars per acre. This may be near the average of some agricultural products at the North, as laid down by staticians who are not familiar with the facts belonging to the subject, but are far from being accurate records. Lands devoted to given crops, as corn, grains, grass, etc., change so constantly at the North, that a discreet man might well be in doubt how to make out his record, even in his own neighborhood. No man can make correct estimates even for a county, without long and laborious investigation. Such difficulties do not present themselves in the cotton-growing States, with few and limited exceptions. The same lands are used, year after year, and almost the whole land is devoted (in more than one sense of the word) to the culture of "king" cotton. Hence statistical estimates in that matter are probably very near the truth.

Profits increase in a much greater ratio than crops. The difference between the profits of a crop of wheat, twelve bushels to the acre, and a crop twenty-four or forty-eight bushels, is much more than one hundred or four hundred per cent. Between the two crops of twelve and forty-eight bushels, the profits of the latter will, perhaps, be ten times the greater. Suppose

wheat is worth $1 a bushel; with the first crop the cost is, say $10; the profit will be $2. In the other case the cost may amount to $20. The value of crop is $48; profit, $28, or fourteen fold.

There is another view in which the importance to the South of a variety in agricultural crops assumes, in our own view, even gigantic proportions.

A short supply of cotton raises the price of the article. Suppose, instead of the usual supply of two and a half millions of bales, only one and a half millions were grown. Very nearly the same value must be received for this diminished quantity that is now received for the whole. It might be that more would be received. Besides, these two-fifths of the land, before devoted to cotton, will now be cultivated with other crops, and thus the entire proceeds of some 2,000,000 acres of land, producing, at the rate only of the cotton lands, a gross sum of some $40,000,000 annually, without a day's additional labor, or any material increase of expense. This would be annual net gain, while the lands would be improved by the change.

There is another record in the census tables which, if there is any meaning in its title, confirm our views as heretofore expressed, and authorizes even more unfavorable conclusions as to the profits of this crop. Table 188 shows that in all "the slaveholding States" there is raised 101.03 lbs. of cotton "to each person." That is to say, THE GREAT crop which overshadows every other crop grown, at 8 cents the average price for a series of years, pays a gross annual sum of $8.0924 to each person. Should it cost only 6 cents, the *profit* of this chief crop could be only $2.0924 to "each person. But it uses up, in a double sense, 1,000,000 acres. If this is within gun-shot of the truth, the South surely ought not to support the spindles of the north and of England at rates so ruinous to themselves. That same land, properly managed, ought to earn a net profit of $20 to $40 per acre, and would do so if the system we advocate were properly carried out.

Some months ago we gave it as our belief that some other crop might be profitably grown instead of wheat in many sections of country where that is a favorite growth. Let us look at this.

The census returns are our only data in these matters, in respect to nearly the whole country. A few States have made up their own census, and it is probable that these are more reliable than those under the direction of the general government.

A reference to this source of information gives us the following general result, with certain crops, for all the States:

		Products.	Acres.	Value.
Indian Corn,	bushels	592,071,104,	31,000,000	$296,035,552
Wheat,	"	100,485,944	11,000,000	100,485,944
Oats,	"	146,584,179	7,500,000	43,975,253
Irish Potatoes,	"	65,797,896	1,000,000	26,319,158
Sweet "	"	38,268,148	750,000	19,134,074
Hay,	tons	13,838,642	13,000,000	96,870,494

This gives us, also, the following:

		Per Acre.	Value.
Indian Corn,	bushels	19.03,	$0 50 per bush.
Wheat,	"	9.13,	1 00 "
Oats,	"	19.53,	0 30 "
Irish Potatoes,	"	65.08,	0 40 "
Sweet Potatoes,	"	51.00,	0 50 "
Hay,	tons	1	7 00 per ton.

These returns, no doubt, are only approximations to the truth, and in some crops scarcely so much as that, notwithstanding the laborious study of our friend Mr. De Bow, with all his well-known talent and indefatigable industry, in searching for the truth out of a mass of inconsistent and irreconcilable figures. But, unfortunately, this is, in most States, our only source of general information.

These figures do not give us a very flattering account of the profits of agriculturists. But in many instances, sections of this territory do not appear to reach even these results. Thus Alabama raises but five bushels of wheat to the acre, and fifteen bushels of Indian corn. We do not believe that the wheat or the corn, at this rate, pays the cost of cultivation. Georgia raises 5 bushels of wheat and 7 of rye. These cannot pay their actual cost. Kentucky raises 8 bushels of wheat to the acre, N. Carolina 7, S. Carolina 8, Tennessee 7, and Virginia 7; none of which can pay the cost of growing it.

South Carolina raises but 11 bushels of Indian corn to the acre, and but 12 bushels of oats.

Florida raises but 250 pounds of cotton to the acre, or only half the average crop; Tennessee but 300 pounds, and S. Carolina but 350 pounds. We have just seen that a crop of 500 pounds is scarcely remunerative.

Now compare these results with some of the more favorable products in other States.

Florida, Texas, and Pennsylvania are returned in the census as producing 15 bushels of wheat per acre, and Massachusetts 16 bushels. But we all know of numerous instances in which 30 and 40 bushels per acre are grown.

Illinois and Indiana grow 30 bushels of corn, Missouri 34, Ohio 36, and Connecticut 40 bushels, as reported in the census. But cases are not unfrequent in which from 80 to 100 bushels are raised per acre, and sometimes 110 are obtained.

How can our land owners be content which such paltry returns for such immense outlays, when the way is so plain to increase their gains five and ten-fold. If wheat can be produced in a given territory at these lowest rates only, let something else be cultivated. Lands will produce something that will pay; and if there should be found some poor, forsaken territory that cannot give the careful tiller a better return for his investments than some that we have here pointed out, let them be abandoned, and more favorable locations be selected. Let them lie fallow a few years, as if they did not exist; and most probably, in a large majority of cases, the natural growth that will spring up will prove beyond dispute that these lands were not as utterly sterile as they were supposed to be, and that the grand mistake was in the treatment of it.

To Preserve Sweet Corn.—Gather the corn just as it begins to harden boil as for the table; cut the kernels carefully from the cob; spread them to dry on a sheet or clean floor, and keep them thus till well dried; then preserve them in a dry, cold and even temperature till needed for use. Soak the corn a few hours, and boil till properly softened, and serve them to your taste.

MR. EVERETT'S SPEECH,

AT THE BANQUET OF THE U. S. AGRICULTURAL SOCIETY AT BOSTON.

MR. PRESIDENT, AND LADIES AND GENTLEMEN:—My most excellent friend, who has just taken his seat, was good enough to remark that he was waiting with impatience for me to speak. Far different was my feeling while he was speaking.

I listened not only with patience, but with satisfaction and delight, as I am sure you all did. If he spoke of the embarrassment under which he rose to address such an assembly—an embarrassment which all, however accustomed to public speaking, cannot but feel—how much greater must be my embarrassment. He had to contend only with the difficulties natural to the occasion, and with having to follow the most eloquent gentleman from Philadelphia. I have to contend with all that difficulty, and with that of following not only *that* gentleman, who delighted us all so much, but my most eloquent friend who has just taken his seat.

And where *two such gentlemen* have passed over the ground, the one with his wide-sweeping reaper, and the other with his keen trenchant scythe, what is there left for a poor gleaner like myself, that comes after them?

With respect to the kind manner, sir, in which you have been so good as to introduce my name to this company, it is plain that I have nothing to respond, but to imitate the example of the worthy clergyman upon the Connecticut river, who, when some inquisitive friend, from a distant part of the country, asked him somewhat indiscreetly whether there was much true piety among his flock, he said, "Nothing to boast of."

If this were a geological instead of an agricultural society, and if it were your province not to dig the surface but to bore into the depths of the earth, it would not be surprising if in some of your excavations, you should strike upon such a fossil as myself. But when I look around upon your exhibition—the straining course—the crowded bustling ring—the motion, the life, the fire—the immense crowds of ardent youth and emulous manhood, assembled from almost every part of the country, actors or spectators of the scene—I feel that it is hardly the place for quiet old-fashioned folks, accustomed to quiet old-fashioned ways. I feel somewhat like the Doge of Genoa, whom the imperious mandate of Louis XIV. had compelled to come to Versailles, and who, after surveying and admiring its marvels, exclaimed that he wondered at everything he saw, and most of all at finding himself there.

Since, however, sir, with that delicate consideration toward your "elder brethren," which I so lately had occasion to acknowledge at Dorchester, you are willing to trust yourself by the side of such a specimen of paleontology as myself, I have much pleasure in assuring you that I have witnessed, with the highest satisfaction, the proof afforded by this grand exhibition, that the agriculture of our country, with all the interests connected with it, is in a state of active improvement. In all things, sir, though I approve a judicious conservatism, it is not merely for itself, but as the basis of a safe progress. I own, sir, there are some old things, both in nature, and art, and society, that I like for themselves. I all but worship the grand old hills, the old rivers that roll between them, the fine old trees bending with the weight of centuries. I reverence an old homestead, an old burying-ground, the good men of olden times. I love old friends, good old books, and I don't abso-

lutely dislike a drop of good old wine for the stomach's sake, provided it is taken from an original package. But these tastes are all consistent with, nay, in my judgment, they are favorable to a genial growth, progression, and improvement, such as is rapidly taking place in the agriculture of the country. In a word I have always been, and am now, for both stability and progress; learning from a rather antiquated, but not yet wholly discredited authority, "to prove all things, and hold fast to that which is good." I know, sir, that the modern rule is "try all things, and hold fast to nothing." I believe I shall adhere to the old reading a little longer.

But, sir, to come to more practical, and you will probably think, more appropriate topics, I will endeavor to show you that I am no enemy to new discoveries in agriculture, or anything else. So far from it, I am going to communicate to you a new discovery of my own, which, if I do not greatly overrate its importance, is as novel as brilliant, and as auspicious of great results as the celebrated discovery of Dr. Franklin; *not* the identity of the electric fluid and lightning, I don't refer to that, but his other famous discovery; that, in the latitude of Paris, the sun rises several hours before noon; that he begins to shine as soon as he rises; and that the solar ray is a cheaper light for the inhabitants of large cities than the candles and oil which they are in the habit of preferring to it. I say, sir, my discovery is somewhat of the same kind; and I really think full as important. I have been upon the track of it for several years; ever since the glitter of a few metalic particles in the gravel washed out of Capt. Sutter's mill-race first led to the discovery of the gold diggings of California; which for some time past have been pouring into the country fifty or sixty millions of dollars annually.

My discovery, sir, is nothing short of this, that we have no need to go or send to California for gold, inasmuch as we have gold diggings on this side of the continent, much more productive, and consequently much more valuable than theirs. I do not, of course, refer to the mines of North Carolina or Georgia, which have been worked with some success for several years, but which compared with California are of no great moment. I refer to a much broader vein of auriferous earth, which runs wholly through the States on this side of the Rocky Mountains, which we have been working unconsciously for many years, without recognizing its transcendent importance, and which is actually estimated will yield the present year ten or fifteen times as much as the California diggings; taking their produce at sixty millions of dollars.

Then, sir, this gold of ours not only exceeds the California in the annual yield of the diggings, but in several other respects. It certainly requires labor, but not nearly as much labor to get it out. Our diggings may be depended on with far greater confidence for the average yield on a given superficies. A certain quantity of moisture is no doubt necessary with us, as with them, but you are not required, as you are in the *placers* of California, to stand up to your middle in water all day, rocking a cradle filled with gravel and gold dust. The cradles we rock are filled with something better. Another signal advantage of our gold over the California gold is, that after being pulverized and moistened, and subjected to the action of moderate heat, it becomes a grateful and nutritious article of food; whereas no man—not the long-eared King of Phrygia himself—could masticate a thimblefull of the California dust, cold or hot, to save him from starvation. Then, sir, we get our Atlantic gold on good deal more favorable terms than we get the California. It is probable, nay it is certain, that for every million of dollars'

worth of dust that we receive from San Francisco, we send out a full million's worth in produce, in manufactures, in notions generally, and in freight; but the gold which is raised from the diggings this side, yields, with good management, a vast increase on the outlay—some thirty fold, some sixty, some a hundred. But besides all this, there are two discriminating circumstances of a most peculiar character, in which our gold differs from that of California, greatly to the advantage of ours. The first is this:

On the Sacramento and Feather rivers, throughout the *placers*, in all the wet diggings and the dry diggings, and in all the deposits of auriferous quartz, you can get but one solitary exhaustive crop from one locality; and in getting that you spoil it for any further use. The soil is dug over, worked over, washed over, ground over, sifted over—in short turned into an abomination of desolation, which all the guano of the Chincha Islands would not restore to fertility. You can never get from it a second yield of gold, nor anything else, unless probably a crop of mullen or stramonium. The Atlantic diggings, on the contrary, with good management, will yield a fresh crop of the gold every four years, and remain in the interval in condition for a succession of several other good things of nearly equal value.

The other discrimating circumstance is of a still more astonishing nature. The grains of the California gold are dead, inorganic masses. How they got into the gravel; between what mountain mill-stones, whirled by elemental storm winds on the bosom of oceanic torrents, the auriferous ledges were ground to powder; by what Titanic hands the coveted grains were sown broadcast in the *placers*, human science can but faintly conjecture. We only know that those grains have within them no principle of growth or reproduction, and that when that crop was to be put in, Chaos must have broken up the soil. How different the grains of our Atlantic gold, sown by the prudent hand of man, in the kindly alternation of seed-time and harvest; each curiously, mysteriously organized; hard, horny, seeming lifeless on the outside, but wrapping up in the interior a seminal germ, a living principle. Drop a grain of California gold into the ground, and there it will lie unchanged to the end of time, the clods on which it falls not more cold and lifeless. Drop a grain of our gold, of our blessed gold, into the ground, and lo! a mystery. In a few days it softens, it swells, it shoots upwards, it is a living thing. It is yellow itself, but it sends up a delicate spire, which comes peeping, emerald green, through the soil; it expands to a vigorous stalk, revels in the air and sunshine, it arrays itself more glorious than Solomon in its broad, fluttering, leafy robes, whose sound, as the west wind whispers through them, falls as pleasantly on the husbandman's ear as the rustle of his sweetheart's garment; still towers aloft, spins its verdant skeins of vegetable floss, displays its dancing tassels, surcharged with fertilizing dust, and at last ripens into two or three magnificent batons like this, [an ear of Indian corn,] each of which is studded with hundreds of grains of gold, every one possessing the same wonderful properties as the parent grain, every one instinct with the same marvellous reproductive powers. There are seven hundred and twenty grains on the ear which I hold in my hand. And now I say, sir, of this transcendant gold of ours, the yield this year will be at least ten or fifteen times that of California.

But it will be argued perhaps, sir, in behalf of the California gold by some miserly old fogy, who thinks there is no music in the world equal to the chink of his guineas, that though one crop only of gold can be gathered from the same spot, yet once gathered it lasts to the end of time; while (he will maintain) our vegetable gold is produced only to be consumed, and

when consumed is gone forever. But this, Mr. President, would be a most eregious error both ways. It is true the California gold will last forever unchanged, if its owner chooses; but while it so lasts, it is of no use; no, not as much as its value in pig-iron which makes the best of ballast; whereas gold, while it is gold, is good for little or nothing. You can neither eat it, nor drink it, nor smoke it. You can neither wear it, nor burn it as fuel, nor build a house with it; it is really useless till you exchange it for consumable perishable goods; and the more plentiful it is, the less its exchangeable value. Far different the case with our Atlantic gold; it does not perish when consumed, but by a nobler alchymy than that of Paracelsus is transmuted in consumption to a higher life. "Perish in consumption" did the old miser say? Thou fool, that that which thou sowest is not quickened *except* it die. The burning pen of inspiration, ranging heaven and earth for a similitude to convey to our poor minds some not inadequate idea of the mighty doctrine of the Resurrection, can find no symbol so expressive as "bare grain, it may chance of wheat or some other grain." To-day a senseless plant, to-morrow it is human bone and muscle, vein and artery, sinew and nerve; beating pulse, heaving lungs, toiling ah, sometimes overtoiling brain. Last June it sucked from the cold breast of the earth the watery nourishment of its distending sap-vessels; and now it clothes the manly form with warm cordial flesh, quivers and thrills with the five-fold mystery of sense, purveys and ministers to the higher mysteries of thought. Heaped up in your granaries this week, the next it will strike in the stalwart arm, and glow in the blushing cheek, and flash in the beaming eye; till we learn at last to realize that the slender stalk which we have seen bending in the corn-field under the yellow burden of harvest, is indeed the "staff of life" which, since the world began, has supported the toiling and struggling myriads of humanity on the mighty pilgrimage of being.

Yes, sir, to drop the allegory and speak without a figure, it is this noble agriculture for the promotion of which this great company is assembled from so many parts of the Union, which feeds the human race and all the humbler orders of animated nature dependent on man. With the exception of what is yielded by the fisheries and the chase (a limited though certainly not an insignificant source of supply) agriculture is the steward which spreads the daily table of mankind. Twenty seven millions of human beings, by accurate computation, awoke this very morning in the United States, all requiring their "daily bread," whether they had the grace to pray for it or not, and under Providence all looking to the agriculture of the country for that daily bread, and the food of the domestic animals depending on them; a demand perhaps as great as their own. Mr. President, it is the daily duty of you farmers to satisfy this gigantic appetite; to fill the mouths of these hungry millions—of these starving millions I might say, for if by any catastrophe the supply were cut off for a few days, the life of the country—human and brute—would be extinct.

How nobly this great duty is performed by the agriculture of the country, I need not say at this board. The wheat crop of the United States, the present year, is variously estimated at from one hundred and fifty to one hundred and seventy-five millions of bushels; the oat crop at four hundred millions of bushels; the Indian corn, our precious vegetable gold, at one thousand millions of bushels! Of the other cereal and of the legumious crops I have seen no estimate. Even the humble article of hay,—this poor timothy, herds' grass and red top, which, not rising to the dignity of the food of man, serves only for the subsistence of the mute partners of his toil—

the hay crop of the United States is probably but little, if any, inferior to the whole crop of cotton, which the glowing imagination of the South sometimes regards as the great bond which binds the civilized nations of the earth together.

I meant to have said a few words, sir, on the nature of this institution, and its relations to our common country, as a bond of Union. (Cries of "go on, go on.")

I have lost my voice and strength, and my good friend who has treated that topic never yet left anything to be said by those who come after him I will only, in sitting down, take occasion to express the great interest I feel in the operations of this institution. I see that it is doing, and I have no doubt that it will yet do infinite good.

I beg, in taking my seat, sir, to tender you my most fervent wishes and hopes for its increased and permanent prosperity and usefulness.

VIRGINIA AND THE WEST—ITS INDUSTRY, ETC.

THE message of Gov. Johnson, of Virginia, furnishes much statistical information, and from it we make the following abstract:

"The Central Railroad, which is but the prolongation eastward of the Covington and Ohio road, is in a state of forwardness, and will doubtless be completed within the period prescribed for finishing the Covington road. The same may be said in reference to the Richmond and York River Road; the last connecting link between the Great West and the capes of Virginia.

"The Virginia and Tennessee Railroad is rapidly approaching completion at the Tennessee line, where it will connect with a net work of improvements, terminating respectively at Knoxville, Nashville, Memphis, and Little Rock in Arkansas. Add to these improvements, the Great Water Line of the James River and Kanawha Company, now extending continuously 200 miles.

"The Richmond and Danville Railroad is rapidly approaching completion to the town of Danville, its southern terminus, and before the end of the year will probably be in use throughout its whole extent."

We take the following passages, entire, from the Governor's Message.

"If the interest of our people required this improvement, (the Covington and Ohio Railroad) in 1800, when the combined population of Norfolk, Richmond, and Petersburg, the three largest cities in the State, was less than 17,000, and the revenue of the State less than half a million, how must the demand have augmented now, when the population of those cities has increased to 70,000, and the revenue to two and a half millions. If called for when Mississippi, Illinois, Indiana, Louisiana, Missouri, Arkansas, Michigan, Wisconsin, and Iowa, had scarcely emerged from their primeval state, what must be the comparative demand now, when the above-named States have become the most productive in the Union. In six of these States, including the western portion of Virginia and Pennsylvania, there was raised in 1849 within a fraction of three hundred and fifty millions of bushels of corn. And according to the ratio of increase during the last ten years, we may safely estimate the crop of 1860, within the above region, at

five hundred and fifty millions of bushels, which is about two-thirds of the entire quantity raised in the United States. Of this enormous crop, it is fair to suppose that one hundred and fifty millions can be spared for exportation, and will seek a transit through the several thoroughfares terminating on the seaboard, provided the foreign demand shall justify such exportation. And in order to determine how far we should rely upon such demand, let us examine for a moment what can be gathered from an estimate of trade in that article for some years past. By reference to statistics, believed to be reliable, it will be found that the exports of corn and corn meal from this country at different periods, have been as follows:

In 1837,	951,276	bushels.
1846,	3,326,068	"
1849,	15,283,054	"
1850,	7,892,302	"
1851,	4,444,921	"
1854,	20,000,000	"

"The above statement shows conclusively that the foreign demand is rapidly increasing, and that notwithstanding the falling off immediately after the famine in a portion of Europe, the exports for the year 1854 amounted to 20,000,000 bushels, establishing the fact, that it is the cheapest and best bread within their reach, and that its use, at no distant day, will extend throughout all western Europe. In that country it is not grown except to a limited extent. Consequently, the supply must be from the United States, and is destined to form a staple article, equal if not exceeding that of cotton in amount.

"I have said nothing of the extensive production of wheat, oats, hemp, and tobacco, all of which admit of transportation, and yield a fair profit to the producer. The census of 1850 shows that the region of country above named produced upwards of fifty millions of bushels of wheat in 1849, and that Kentucky alone exported fifty-five millions of pounds of tobacco. This immense and almost incalculable amount of trade must find its way to a foreign market through some of the great leading thoroughfares now in operation or in progress of construction. The next inquiry is, can Virginia compete successfully for this trade and travel? The ready answer is, yes. Her Atlantic ports are nearer the center of these western and south-western granaries than any other on the coast; her roads of easier grades; her climate more genial, and the scenery more picturesque and inviting, while her ports and harbors are more spacious and safe, and the egress to the ocean more convenient and direct than from any other that could compete with her.

"It is a self-evident proposition that the production of a country intended for market will be conveyed by the cheapest and most direct line; and as the communication with the European markets will be shorter through the ports of Virginia than any other, it is but reasonable to infer that the trade of the South and West will necessarily pass through this channel when these improvements shall have been completed. And yet, for want of them, the census of 1850 shows that there was received, during that year, in the city of New-York, from Western States, 984,434 barrels of flour, 3,344,647 bushels of wheat, 2,608,967 bushels of corn, 146,836 barrels of provisions, besides a corresponding quantity of ashes, stores, wool, butter, cheese, lard, etc., a large portion of which is forced upon a route more than one hundred miles longer than that terminating on the Capes of the Chesapeake, and

much of which must of necessity return by way of the Capes in its regular transit to a foreign market, being a palpable innovation upon the established rules of traffic, the end and object of which is gain to the operator.

The foregoing statistics have reference to the section of country bordering on and northwest of the Ohio river; but it should be remembered that at the mouth of the Big Sandy River Virginia shakes hands with her daughter Kentucky, who has long been importuning her tardy mother for permission to pass her rich treasures through the ancestral domain to the Chesapeake, and from thence, by a direct transit, to the different marts of the world. Kentucky proposes also to make common cause with Virginia in the completion of improvements now in progress, by which a direct communication will be formed between Norfolk, Petersburg, Richmond, Fredericksburg, and Alexandria, in Virginia, and Maysville, Lexington, and Louisville, in her own State, and extending from thence, by way of Memphis, on the Mississippi river, to the distant southwest.

The system in progress is equally magnificent in plan and importance; and when completed, in connection with a direct communication with foreign cities and depots, will impart renewed vigor and activity to all branches of business, greatly enhance the value of our lands, build up our cities, and make Virginia conspicuous among the most flourishing in the category of States.

UNITED STATES AGRICULTURAL SOCIETY.

Let all who can, give their attendance at the meeting announced below. It cannot fail to be highly interesting and important.

The Fourth Annual Meeting of the United States Agricultural Society will be held at Washington, D. C., on Wednesday, January 9, 1856.

Business of importance will come before the meeting. Reports from its officers will be submitted, and a new election be made, in which it is desirable that every State and Territory should be represented.

Lectures and interesting discussions are expected on subjects pertaining to the objects of the Association, by distinguished scientific and practical agriculturists. The transactions of 1855, containing a full account of the late exhibition at Boston, will be distributed to such members as are present.

The various agricultural societies of the country are respectfully requested to send delegates to this meeting; and all gentlemen who are interested in the welfare of American Agriculture, who would promote a more cordial spirit of intercourse between the different sections of our land, and who would elevate this most important pursuit to a position of greater usefulness and honor, are also invited to be present on this occasion.

W. S. King, *Secretary.* Marshall P. Wilder, *President.*

December, 1855.

NORTH CAROLINA, ITS CAPACITIES AND ITS CONDITION.

We have read with much pleasure the following statements of the condition of the lands and of general industry in North Carolina, in the address of Hon. Thos. Ruffin before the State Agricultural Society. We wish there were many more such energetic and efficient advocates of this cause in every part of the country. We take the following from the address of Mr. Ruffin as published in the Carolina *Cultivator:*

"The profits and the comforts of agriculture depend mainly on climate, soil, labor, and the facilities for disposing of surplus production. The two first, climate and soil, should be congenial to products requisite for the sustenance of the husbandman himself, and in demand for others who cannot produce for themselves. In both points North Carolina is highly blessed. In her position on the globe she occupies that temperate and happy mean, which is conducive to health and the vigorous exertion of the faculties and energies of body and mind, in employments tending more than all others to the hospitalities and charities of life and the other virtues of the heart, and which constitutes a climate, that, in unison with her fertile soil, yields abundantly to the diligent tiller nearly all the necessaries and many of the luxuries required by man. We do not work barely to maintain life; but, beyond that, to realize gains that may be employed in the addition of other things productive of the elevation and refinement of civilized man. Our winters, by their duration and rigor, do not confine us long within doors, nor cause us to consume the productions of our labor during the other parts of the year; but we are able to prosecute our field operations and comfortably pursue our productive employments throughout the four seasons. Though not of such extent of latitude as thereby to create much variety of climate, and consequently of production, yet the dimensions of North Carolina, east and west, supply that deficiency in a remarkable degree. The proximity to the ocean of her eastern coast, and the difference in elevation between that and the mountains of the west, with the gradations in the intermediate regions, produce a diversity of genial climate which gives to North Carolina, in herself, the advantages of many countries conjointly. By nature, too, her soil was as diversified and as excellent as her climate. The rich alluvial of the east, the extended and extremely fertile valleys of the many long streams—the Roanoke, the Tar, the Neuse, the Cape Fear, the Yadkin and Pedee, the Catawba, and other rivers, which appear upon our map, besides those of smaller streams, almost numberless, all, at a moderate expense of care and labor, return large yields of nearly every grain and other production fit for food. Rice, maize, wheat, rye, barley, oats, the pea, the potato of each kind, besides an endless variety of other sorts, vegetables, and fruits, are found abundantly therein; while higher up the country, in addition, the grasses grow so readily and luxuriantly as to afford not little plots on the moist bottom sof brooks, but extensive pastures and magnificent meadows to the mountain tops. Then, there are the great articles of cotton and tobacco, so extensively used and in such great and increasing demand—to one or the other of which the greater part of the State is eminently suited. Of fruits, melons of every kind and of the best qualities, apples, peaches, pears, cherries, nectarines and apricots flourish almost everywhere, as do also the smaller, but most valuable kinds, as the strawberry, the raspberry, the gooseberry, cur-

rants, and, above all, our native grapes, the sweet and prolific Scuppernong and the rich Catawba, which mature well, besides some of foreign origin. When to these are added the fish, with which our eastern waters abound through the year, but are alive in the spring—our naval stores and lumber, our marls, our minerals, gold, silver, copper, and especially the extensive and rich deposits of iron ore, and the coals, one may confidently ask, is there any other country which contains or produces more or a greater diversity of things to sustain life or to bring money? And then let me inquire of you, North Carolinians, what better country do you want than your own? I hold it is good enough—too good, I am tempted to say, for sinful man. It requires only to be dressed and tilled to give nearly all we want on earth, and much for our fellow-man less happily situated. There may at some time be a stint below our usual abundance; but we need never fear a famine here while we work. Indeed, that calamity can hardly befall a country where maize—which we call Indian corn—grows to perfection. There is no record of a dearth, approaching famine, where the principal crop was maize, as it is here. Our climate and soil are so congenial to the other cereals, that a failure of that crop from an unpropitious season is necessarily perceived in time to provide the others, or some of them, as a substitute.

"If not to the lowest, certainly to a very low condition, much of the land in the State had been brought; and the time came, when, if improvement was ever to be made, it would be commenced. I use the expression, 'the time came,' instead of 'has come,' because it is a joyful fact, that some persons in various parts of the State, many in some parts, have improved, and continue to improve their lands and increase their crops—profiting much therefrom in their fortunes and setting the rest of us examples by which we ought also to profit. We have all heard for some years past, that the era of improvement had begun in the great and wealthy county of Edgecombe; and I learn from unquestionable sources, that the intelligent and enterprising planters of that county have been rewarded by signal success. I do not propose to enter into a detail of their system further than to say, that it consists chiefly in draining by ditches and embankments, making and applying composts, the use of guano and plaster of Paris, and the field-pea as an ameliorating crop, as well as food for stock. I advise every one, however, who has the opportunity, by minute inquiries to obtain from those who have put this system into use, detailed information respecting it; and I feel no hesitation in preferring a request to the planters of Edgecombe, as public-spirited gentlemen, to communicate through our agricultural periodicals the history of their improvements, and their experiments—as well those in which they failed as those in which they succeeded, with all other matters which may be useful to their brethren in other sections.

To Preserve Sweet Potatoes.—Dig them carefully, before they are injured by the frost; place them in barrels without bruising their skins, and let the barrels stand upon their ends to prevent their rolling. Keep them as cool as is safe, (guarding them from the frost,) and at an equal temperament. A little dirt will be no injury, and may serve as a slight protection both from injury and from frost.

PELLA, IOWA—ITS INDUSTRY, ETC.

A LATE number of the *Gazette*, published at this thriving place, (and a very good paper it is,) contains an article from which we gather the following facts:

Green hides can be purchased there at three cents a pound, and dry hides at six cents, while in this city they are worth from 15 to 25 cents.

Bark costs 75 cents to a dollar a cord.

Leather is as high as at the East. That used in Iowa is imported from St. Louis, Burlington, Keokuk, Cincinnati, etc.

In Keokuk prices range as follows:

Red sole leather,	25 to 26 cents.
Oak, Cincinnati,	25 " 31 "
Harness,	30 "
Upper,	26 " 36 "

Hence the manufacture of leather in these places must pay a great profit, all the requisites for tanneries are easy of access.

Lard is worth 7 to 10 cents, Stearine candles 30 cents, lard oil a dollar per gallon. Tallow averages 10 cents, and mould candles 20 cents. Soap grease say 2 cents, and soap from 12 to 15 cents, finer much higher.

There are stone quarries, brick kilns, and steam saw-mills, but building materials are scarce. Lime and sand are abundant.

"All that is required is pressure of one part lime with from ten to twelve parts sand, and they dry and harden in the sun. Cost of machine, with transportation, two hundred and fifty dollars. Cost of patent right for county, say two hundred dollars. Two men and a horse required to work it, and machine averages, say fifteen hundred brick a day, each brick from three to four times as large as a common brick, and ready to put together with a cement composed of lime and water. They will make a handsomer, more durable, and cheaper house than any now built.

"STEAM GRIST MILLS.—There are a large number of our citizens who are already aroused respecting this enterprise, who know its importance, utitity, and profit, and who would gladly engage in it, if they had the means. We learn that Messrs. Grafe & Henckler intend to erect a mill of this description in this place; but we candidly think the field is large enough for two. We live in a well settled farming region, and if such mills are built, they will encourage the growth of grain, and the demand for both home consumption and exportation is sufficient to support and give constant employment to at least two large-sized grist-mills. And it will be certainly to the advantage of the farmer, as 'competition is the life of trade.'

"IRON FOUNDRY.—It is well known that there are large beds of iron ore, of superior quality, in this vicinity, with abundance of coal, wood and water in the same vicinity, so that such an enterprise can be successfully put into operation here. Of course such an enterprise would begin with minor castings of such things as are in universal demand. But we think it would not require a great stretch of imagination to conceive that such an enterprise would gradually enlarge until railroad iron, steam engines, and locomotives would form an important part, and distinguishing feature. Then it would give constant and profitable occupation to numerous workmen, and add materially to our present wealth and prosperity. We long to see some enterprising individual take hold of this work.

"Glass Factory.—The risk of breakage is so great on transportation of glass that it forms an important item in its cost to the consumer. All this would be obviated if we had a glass factory here. Abundance of fine sand exists in this vicinity, and potash can be readily procured from the surrounding country.

"Potash Factory.—Potash is now worth here about 20 cents a pound. It could be made with profit at 12 cents, and the market would be excellent if we could get soap and glass factories.

"Chair Factory.—This useful article of furniture is now about entirely imported from the river and Cincinnati. The cost of transportation would alone form a handsome profit to the manufacturer. The same remark will apply to sash and door factories.

"Carding Machines.—Iowa is one of the best States in which to raise sheep in the Union. Wool is worth here from 40 to 50 cents a pound, and yarn from one dollar to one dollar and a quarter a pound. From 50 to 75 cents a pound is pretty good profit."

We give the above statements and commend them to the attention of our mechanics, etc., who are in the market, that they may carefully view this field. It offers strong inducements for young men of enterprise, and we hope to see this section rapidly occupied with every form of industry. God speed our friends in the far West.

THE COST OF RAISING COTTON.

[We avail ourselves of the following very satisfactory testimony in corroboration of our own estimates of the value *to the planter* of the latter crop, by one who evidently knows how to estimate the expenses of agricultural products. We hope our Southern friends—whom we count by many hundreds—will give them the attention they deserve.]—Ed. P. L. & A.

Messrs. Editors:—Knowing, from the regular perusal of your paper, that you do not desire to circulate erroneous information, I take the liberty of correcting a very incorrect statement which appeared in your tri-weekly issue of the 28th ultimo, in a communication headed "The Gulf States of our Union and the Valley of the Mississippi." The misstatement, doubtless an unintentional one, occurs in the following paragraph:

"The cost of raising cotton is four cents a pound; one bale of five hundred pounds to the acre is considered a fair crop. A twenty-acre field yielding twenty bales, or ten thousand pounds, at eight cents a pound, only yields a profit of four hundred dollars." [See our leading article.]

The true state of the case can best be reached by taking the case of an improved plantation of the most available size and with a proper number of slaves upon it, and making the estimates from that basis. This is a most favorable way of making the estimate to exhibit the largest profit; for it is well known to every experienced planter—and how dearly some have purchased their experience!—that the expenses incident to the opening and improving of a plantation for several years after the undertaking is begun, eat up all the profits and often leave a load of debt behind, sometimes forcing a sale of the whole property, which thus leaves the lands of the original pro-

prietor to fall into those of some wiser man who has eschewed the toil and hazard of opening a new place.

A plantation of sixteen hundred acres, one thousand of which is cleared land, and has the necessary cabins and other buildings necessary for carrying on a place of that size, is worth from forty to sixty dollars per acre, according to locality. Estimating its value at the lowest rate, say $40 per acre, and it makes $64,000. To work this place to advantage—that is, to cultivate seven hundred and fifty acres in cotton and two hundred and fifty in corn, peas, potatoes, etc.,—will require a force of 75 effective hands, which, with the young and old, who do not go to the field to work, who would ordinarily be united to the 75 hands, would constitute about 130 or 140 slaves on the place, who, at an average $600 a piece, would be worth about $75,000; 50 mules worth $130 each, would make $6,400 more; 100 head of cattle may be estimated at $1,200; 300 hogs may be estimated at $700; 12 yoke of oxen at $600; wagons, farming utensils, furniture, blacksmith and carpenter's tools, and all the other necessaries, including gin-stands, mill, etc., may be estimated (and it is an under estimate) at $2,000; so that any one, by simply adding these different amounts, will see that the entire value of such a place as I have supposed will be about $150,000; and this upon the supposition that the place is worked without a steam-engine to gin the cotton with.

Such a place, with favorable seasons, will make ten bales to the hand, or about one bale to the acre, and sometimes when everything is prosperous, an early spring and a late dry fall, as many as twelve bales to the hand, and in some very extraordinary instances even as high as fifteen bales have been gathered. But on an average of ten seasons every experienced planter will agree that eight bales to the hand is an outside estimate, making a crop of about six hundred bales; and taking 8 cents as the average price per pound, which for swamp cotton is again a full estimate, and the gross income for a single bale of 400 pounds, which is the well known uniform weight, will be $32, and the whole crop $19,000, exclusive of the cost of shipping, and soiling the crop, which amounts to at least $2 50 per bale in every case, and where the place is distant from market nearer twice that; leaving say a net income of about $18,000. From this must now be deducted the cost of cultivating the place, overseer's wages, feeding, clothing, and doctoring the negroes, supplying wear and tear of tools, and losses of mules and stock, altogether, on a place of the size I have named, not falling short of $6,000, many planters estimating their expense at $100 to the hand, which would make $7,500. Taking it at the former sum and we have the net profits of such a place as I have described amount to $12,000, being just about an interest of 8 per cent. on the value of the capital invested.

This, Messrs. Editors, I believe a fair statement of the profits of the cotton planter; and you can now see how it comports with the fancy sketch of your correspodent. If I have exaggerated at all it has been in giving too favorable an aspect to the side of

A PLANTER.

VICKSBURGH, July, 1855. [*National Intelligencer.*

SHELBY COUNTY (ALA.,) LIME.

[WE are always glad to announce such statements as the following, which we find in the Alabama *Planter*.—ED. P. L. & A.]

"We received yesterday a specimen of the lime manufactured by the Shelby County Lime-Kiln Company, (situated some sixty miles above Salem) under the management of Mr. Robert Hall. Those interested in the article can see it by calling at this office.

"The company, we learn, has a large capital, and is getting ready to furnish one thousand bushels of lime per day. It is manufactured from blue limestone, which, we believe, is considered the best stone for the purpose. The supply of material is inexhaustible.

"Several barrels of the article have been brought to this city for trial, and some of our most experienced builders pronounce it superior to the Thomaston lime. Others are about to put it to test, and their opinions we shall, doubtless, have presently.

"The specimen at this office is extremely fine, and worthy of the attention of dealers and builders.

"There is only now one drawback to the enlarged operations of the company, and that is the uncertainty of communication with this city. The confident belief is that if the supplies can be got here it will drive all other limes from the market. And this, after all, is the chief obstacle to the development of the immense wealth of the interior; and is another reason why our citizens should give their attention more generally to the subject of internal improvements. With a certain communication, either by river or railroad, with the seat of our mineral wealth, within a few years we should have numerous companies of wealthy men diverting their capital from cotton to these mines of wealth which, in many cases, are now almost worthless. The result would be good both for town and country. It would draw us more closely together, and save to our people hundreds of thousands of dollars which now go to enrich places which have no interest or sympathy in common with us.

"If the rivers do not cheat us this season, however, the company will find means enough to send hither large quantities of this lime. We wish it all the success which it seems to merit."

COMMERCE OF THE COUNTRY.—The Washington papers contain official documents giving in detail the exports of domestic merchandise from the United States to foreign ports for the year ending on the 30th June last.

The total exports of breadstuffs amounted to $21,557,854; of provisions, $15,138,277. Making a total of breadstuffs and provisions of $36,696,131, against $65,901,240 of the same in 1854; showing a decrease in 1855 of $29,205,109.

TOBACCO EXPORT, JANUARY 30, 1855.

Treas. Year.	Hogsheads.	Value.
1855	150,213	$14,712,468
1854	126,107	10,016,046
Increase	24,106	$4,666,422

France is the largest importer of our tobacco, taking 40,866 hogsheads Great Britain takes 24,303, Bremen, 38,053, Holland, 17,124; the balance is distributed among the different Continental States.

The following is a comparative export of the great staples:

	1855 Value.	1854 Value.
Cotton,	$88,143,844	$93,596,220
Bread and provisions,	36,696,131	65,901,240
Tobacco,	14,712,468	10,016,046
Rice,	1,717,953	2,634,127
Total	$141,270,396	$172,147,635

Of the 1,203,540 bbls. of flour exported in 1855, New-Orleans exported 345,743 bbls. Of the 294,440 bbls. pork, New-Orleans sent off 168,311 bbls. She sent off 43,312 hogsheads of bacon, of 38,186,989 lbs., the entire amount exported from the country; 791,635 kegs of lard, of 39,025,492 lbs. We exported 1,270,264 bales of cotton, and 64,100 hhds of tobacco.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, TIOGA CO., N. Y., AND THEIR USES.

CARTANEA VESCA AMERICANA, OR CHESTNUT.

THE chestnut is found in this vicinity growing on the river and creek flats, also on the highest hills, in nearly all situations. Trees on the flats are generally bushy, like the apple-tree, and seldom over 40 feet high, and two feet in diameter. They have generally grown since the land was first cleared, while on the tops of the highest hills they are from 70 to 90 feet high, and from 2 to 5½ feet in diameter. A number of old trees on a high ridge near here will average 3 feet and occasionally one near 6 feet.

Leaves oblong lanceolated, accuminate, mucronately serrate, smooth on both sides, ribs to leaves fifteen on each side, stems to leaf about three-fourths of an inch long, leaves from 8 to 12 inches long, and 2 to 3 inches wide. Sterile aments about 6 inches long; the numerous flowers, white or cream color, and show to a great advantage a mile or more, emitting a sickish sweet odor that can be smelt a long way. The chestnut was in full bloom this year the 18th of July, and is frequently in bloom the 10th of July. We generally think it the best time to sow buckwheat when the chestnut is in full bloom.

Fertile involucres or burs solitary or several in a cluster, like apples, scaly when grown large, frequently two inches in diameter, nearly round, and covered with slender compound rigid prickles, which are one-fourth of an inch long, hard and stiff when ripe, making it difficult to handle. These burs are a beautiful green, till within a few weeks of being ripe, when they turn a brownish drab. Each bur generally incloses three nuts; one or two are often abortive. Nuts varying in form according to the number in an involucre or bur. When there are two, each will be compressed on the inside;

and when three are perfected, the middle one will be flattened on each side.

The chestnut flowers here from the 8th to the 18th. Fruit ripe in the latter part of October, generally not till after a hard frost.

The chestnut is the most valuable tree we have in this vicinity. It splits very readily into posts or rails; and when green chops very easily. A man that understands the business will often split from three to five hundred rails in a day. The timber is light and stiff when seasoned. The rails last from thirty to forty years, and posts in the ground from twelve to sixteen years, and perhaps much longer. The chestnut after being cut down sprouts very much. The sprouts frequently grow five feet in a year, and by letting them stand, there will be a large growth of timber in a few years. If the land is to be kept clear, the sprouts are easily knocked off. Sprouting for successive years generally kills the stump, when it rots out in fifteen or twenty years, unless very large. But the chestnut stump comes out early in comparison with the durability of the timber. Stump machines are getting so common here, that stumps of all kinds of timber are readily pulled when green.

As yet, chestnut timber has been used only for fencing in this vicinity, with the exception of sills, plates, etc., for frames.

The nuts that grow on chestnut trees in some years are quite abundant, and are worth from $2 50 to $3 per bush. ROBERT HOWELL.

NICHOLS, Dec. 13.

INSECTS INJURIOUS TO VEGETATION.

HEMIPTERA. (Continued.)

WE proceed with the description of insects of this order, and next describe the

COCCIDÆ or BARK LICE.—They have thread-like or tapering antennæ, longer than the head; females wingless, but furnished with beaks; males with wings, which lie horizontally on the top of the back, and are not furnished with beaks, (suckers.) Feet with only one joint, terminated with a single claw; skin firm and hard; two slender threads at the extremity of the body in both sexes. The females are without piercers. They are about one-tenth of an inch long, and of an oval shape.

These insects live chiefly in the barks of the stems of plants, though sometimes found on the leaves and roots. In their early stage the head is concealed beneath the shell of the body, and the beak seems to issue from the breast. The legs, six in number, are very short, and invisible from above. The females scarcely undergo any change except an increase in size, though the males pass through a complete transformation ere they arrive at their perfect state. They are found early in the spring, in a torpid state, adhering close to the surface of the bark, with the head upwards, and an attempt to remove these insects generally crushes them, when a dark-colored fluid issues from the body. At a later season, if lifted from the bark by a knife-blade, numerous eggs will be discovered, and the insect appears to be dead and dried up. On the approach of warm weather, the young escape

through the lower end of this shield, and move about with considerable activity.

These insects form the Genus Coccus. They present various aspects in regard to their covering. The *Coccus cacti*, or cocheneille of commerce, is covered with a mealy powder. So also is the Coccus Adonidum, or *mealy bug* of our green-houses. Some are hairy or woolly, and many others are naked and dark-colored. The young are generally white, or nearly so. They draw their sustenance from the bark, and plants often suffer severely from the loss of sap exuding through the punctures thus made. In process of time they fasten themselves by threads to the bark, and undergo a transformation. If these shields are raised, the rudiments of wings, antennæ, etc., appear. This is their pupa or chrysalis state. The larger insects are the females, who remain immovable. After pairing, the females increase in size. The eggs, which are numerous, pass under the body of the insect, which gradually dries up as already stated. The bark-louse of the apple-tree produces two or more broods in a season. The females survive the winter and lay their eggs in the spring. The males die in autumn.

Young apple-trees suffer from the attacks of these lice.

The eggs of these insects are very numerous, 30 or 40 being often found under a single shield. They are white and oblong, like snake's eggs. They begin to hatch, in the Northern States, about the 25th of May.

Chichadees and *Wrens*, and some other birds, are the natural enemies of these lice, and devour great numbers of them. Ichneumon flies of very small size also destroy them.

Soap-suds mixed with lime is a useful application. The lime should be added in such quantities as to make a thick whitewash. This should be applied with a brush, so as to fill all the crevices, cracks, etc., existing in the bark. It should be applied in June.

There are other kinds of lice found on these trees, of a different species, one of which is nearly the shape of an oyster-shell, which are dormant in winter. The female is minute, wrinkled at the sides, flattened above, of a reddish color. She undergoes no change. The male completes its transformation about the middle of July. The perfect male is scarcely more than a point, but under a microscope appears furnished with whitish wings, long antennæ, six legs with their joints, and two bristles, terminating the tail.

The young lice are pale yellowish-brown, oval, and appear like scales. They move about for a while, and then become stationary, and after pairing lay their eggs.

The Cotton louse sucks the sap from the leaf and tender shoots of the plant, by which the vigor of the plant is wasted, and the leaves curl up, turn yellow, wither and die. It is of a green color, about a tenth of an inch in length. Two slender tubes, growing from the abdomen, secrete the "honey-dew," which attracts multitudes of ants. The young insects appear during the summer, and the depredations of the insects continue till November.

It is impossible to describe all the numerous species of the louse, and a microscopic examination would scarcely enable one not having great experience to distinguish them. Nor is this ability requisite for the agriculturist, as the same means are efficient alike for the entire order. The minute classifications are important only to the student of natural history.

LIST OF FRUITS FOR OHIO.

TAKEN from the published report of the Ohio Pomological Society and the State Agricultural Convention at Columbus.

The object of the meeting was stated by Dr. Warder to agree upon a list of apples to be recommended for general cultivation throughout the State of Ohio.

On motion, it was agreed to take up the several kinds of apples in the order of their season, as summer, fall and winter varieties.

Early Harvest was reported as good in all parts of the State—not a profuse bearer, but fair in most localities; does best in rich or well manured soil. Highly approved wherever known. Recommended unanimously.

Early Strawberry.—Highly approved in south and center of the State, also in north-west and north-east. Not much known in some of the northern counties, but does well wherever known. Recommended unanimously.

Large Yellow Bough or *Sweet Bough.*—Gen Worthington has grown this extensively for many years in Ross County, and approves it very highly. Was reported good in all parts of the State. Not a great bearer. Dr. Warder proposed to recommend it only for limited cultivation. Recommended with one dissent.

American Summer Pearmain.—Proposed by Dr. Jones, and highly recommended by all who know it, but passed as not sufficiently known.

Golden Sweet.—Generally known in different parts of the State, and highly recommended, especially for baking, for apple butter, and for stock. Recommended with one dissent.

Maiden's Blush.—Commended by numerous gentlemen, especially for its fine looks and for market. Some like it for cooking and for the table; does well in all parts of the State—is larger and of less flavor south than north. Recommended with several dissents.

Fall Pippin or *Golden Pippin.*—Well known and highly approved in all parts of the State. Keeps best and has best flavor at the north, but is largest at the south. Recommended with one dissent.

Cooper.—Dr. Hempsted said he believed the history of this apple had not yet been fully stated. The grafts were brought from Boston to Marietta by Mr. Adams, of Zanesville, who called it a *French Apple*, the original trees having been imported, as he believed, from France. All present who knew the apple called it first-rate; but some gentlemen thought it not sufficiently known to warrant its recommendation for general cultivation, especially in the northern part of the State. Recommended with one dissent.

Rambo.—Was pronounced first-rate, especially in central parts of the State. Dr. Warder said it was good at the south, but ripens early, becomes dry, and does not keep as well as at the north. Recommended unanimously.

American Golden Russet.—Gens. Worthington and Green said it was first-rate when in perfection, but with them it soon perishes, and is not generally of fair and healthy growth. Mr. Steele finds it first-rate, good size and trees healthy, considers it the best of winter apples for the table. Other gentlemen said it was not of attractive appearance, and not good for market; though persons who knew it would buy it. Dr. Cone said trees were not healthy with him. Dr. Warder considers it first-rate—tree of slender growth. Recommended unanimously.

Yellow Bellflower.—Much approved in most parts of the State; not so

large and handsome at the north as in central Ohio. Recommended with several dissents.

White Bellflower or *Ortley.*—Mr. Ernst and others from southern Ohio approve it highly; and all agree that it is a good apple, and adapted to most parts of the State. Recommended with several dissents.

Newtown Spitzenberg.—Very highly approved at Cincinnati, and also in other parts of the State wherever known, for table and for market. Recommended.

Winesap.—Well known and everywhere approved. Recommended unanimously.

Talman Sweeting.—Recommended and several others as very excellent for baking, and as a great bearer, profitable for stock. Passed, as not sufficiently known.

Roxbury Russet.—Condemned by many as uncertain, and liable to speck and rot. Passed as not worthy of general commendation.

Newtown Pippin.—Highly commended generally, but Gen. Worthington and several others found it to speck with them. On sandy soils not generally good, also on beech clay soils at the north. Professor Mather thought it was good only on limestone soils. Gen. Worthington thought this and some other *old* kinds are losing their health and vitality. Recommended with several dissents.

Rawles' Janette or *Geneting.*—Dr. Warder said this was *the* winter apple of southern Ohio, Kentucky, etc., but he was afraid it was not generally known through the State, especially in the north. Several gentlemen from different parts of the State said they knew it, and approved it highly. Recommended unanimously.

Winter Sweet Paradise.—Specimens presented by Mr. Brush, who commended it very highly, especially for baking; read Downing's description. Has been grown by Wm. Merion, near Columbus, for ten or twelve years. Said to have come from Pennsylvania. Mr. Bateham thought it was identical with the *Wells Sweeting*, of Rochester, N. Y. All agreed that it was a first-rate sweet apple. Recommended for general trial.

Broadwell Sweet was highly commended by Mr. Ernst and others from Cincinnati, near which city it originated. Ellott's description was read, and his commendation seconded. Recommended for general trial.

Belmont or *Gate.*—Mr. Bumrickhouse said this apple was considered indispensable in his region; thinks the tree rather tender. Gentlemen from central and northern Ohio spoke of it as very excellent, and deserving general cultivation. Recommended for general cultivation in northern half of the State.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

DRY BROTH.

Dry broth is a very useful and nutritious article. It is very common in Russia, and in other countries amid huge forests where game is scarce and fuel of great price. In traveling in that country, I came to a place where this broth was manufactured, and remained there three days for the purpose of learning the process. It is as follows:

Take half of an ox, half of a sheep, entire, ten fowls, ten partridges, and cut all these into small pieces. Place it in a copper boiler well tinned, and pour six quarts of water to one pound of flesh. Cook this in the open air or in a basement over a moderate fire, skim it carefully, and after the soup is well cooked add some vegetables, &c., that is to say, celery, pork, parsley cut fine, and cook the whole ten hours or more, or until the soluble portions of the flesh are dissolved. Then strain the liquor through a colander. Place the residue under a press and pour what flows from it into the soup. The residue of the flesh is comparatively tasteless, and may be given to dogs, swine, &c.

The soup which has been strained, is again poured into the boiler, and made to boil moderately. It should be taken from the fire at such time as, when poured off and allowed to cool, it will become a compact mass, resembling chocolate. This moment must be determined by repeated trials. The soup should then be poured into vessels of tin or potter's ware, and suffered to remain several days. The mass is then placed in the sun or in a dry room, until it shall become dry soup.

Dry soup is prepared of different sizes, of one, three, six or twelve pounds, and is sold by weight.

It should be observed that in its composition there is no salt, nor spice. Salt has a tendency to soften and moisten it, and any spice does not suit all persons alike. Besides, the broth, being administered as soup and dissolved, would not be suitable for the sick.

This dry broth forms a very convenient kind of food for those traveling on foot or through uninhabited districts.

The Russians who make the voyage from Moscow to Kiachta, over the steppes of Siberia, scarcely use any other kind of food. A vessel holding six or eight ounces of boiling water, into which is thrown a half pound or more, according to the number of guests, seasoned with salt and pork, and with garlic if to their taste, poured upon biscuits, furnishes a nutritious, wholesome and pleasant repast. For sailors it is useful as a preventive of the scurvy. (When wrecked, should each man secure a few pounds of it they might thereby save themselves from starvation and death.) In long journeys over prairies and desert countries, it is of very great value.

This broth might be prepared with the beef and mutton, without the addition of other things. But it would not be so pleasant to the taste, nor command so high a price. SANEWSKI FELIX.

[*Translated from the French manuscript by the Editor.*]

THE DIFFICULTY OF JUDGING BETWEEN FIRST-RATE ANIMALS.

THE following, from the *Mark Lane Express*, may be read with profit by those acting as judges at our public fairs. The recommendation in the last paragraph may be useful to State Societies:

"SIR:—Allow me to offer a few remarks on this subject, as applicable to the approaching meetings of our leading agricultural societies, now close at hand.

"The difficulties which are often experienced by the most competent

judges, in deciding between two really first-rate animals of a first-rate sort, are greater than the majority of people who have never acted in the capacity of judges have any idea of. I am happy to say that at the meetings of the Royal Society such cases frequently do occur, and, I hope, always will, and with the wish that what I here assert may tend to assist judges on their laborious duties, I am induced to trouble you with these remarks.

"I will take an instance of two first-rate short-horned bulls, neither of them having a faulty point. Judge A. says, 'What a superb back No. 1 has!' B. says, 'But look at that depth of carcase in No. 2!' 'But the length of quarter in No. 1!' continues A.; and in return B. draws attention to the silky texture of the skin of No. 2. The question is here put to Judge C. who *should* decide the case; but he has to balance, in *his* mind, whether a superior back is more to be considered than extraordinary depth of carcase; and again, is a first-rate quality of hide equivalent to an unusual length of quarter? And thus points, without having some definite value attached to them, might be compared one against the another *ad infinitum*, without ever coming to a satisfactory conclusion.

"Now, what I wish to see is, a definite value affixed to every point in the perfect animal, and when such cases of nicety as I allude to do occur, let the judges take point by point, and compare value in numbers, and then the animal commanding the highest amount would be the one selected. If the perfect animal were 50, the component parts might be something as follows:

	Bull.	Sheep.	Boar.
General Appearance,	8	12	20
Back, (length and width,)	8	10	8
Chest,	6	4	5
With of hips and loin,	5	4	5
Depth, (rotundity of carcase,)	5	5	4
Quarters,	5	3	3
Head,	4	4	9
Hide, (or wool,)	4	5	2
Bone,	3	3	2
Shortness of legs,	2	1	2
	50	50	50

"This table is merely on a rough scale; but I think if the committee of the Royal Society would devote one of their meetings to the consideration of the subject, their time would not be wasted; and a scale made under their direction, similar to the above, would be received by the agricultural public as an authentic data to refer to.

"Hoping that these remarks may draw the attention of our great stock-breeders to the subject, I remain yours, etc., X. X."

NATIVE GEORGIA WINE.

The cultivation of the grape has received of late some attention from our Southern friends. We are exceedingly glad to be able to add this to the variety of products for which extensive tracts of land are well adapted. A late number of the Augusta *Chronicle* contains a statement on this subject

which we copy, that some at least of our many Southern readers may try the experiment for themselves. We also wish to avail ourselves of so favorable an opportunity to commend the enterprise which of late is so manifest in many of the Southern States. There is no reason why every useful mechanical and manufactured product of the North and West should not be also produced at the South. But for our extract:

"On Monday, the 12th inst., quite a large party of gentlemen of this city and its vicinity assembled at the store of Messrs. Dawson & Skinner for the purpose of sampling some native wines made by Mr. Charles Axt, at his vineyards in Wilkes county, Georgia. The wine offered was the pure juice of the Catawba grape, only about eight weeks from the press, and of the quality known as "still Catawba." It was very impartially tested, side by side with several other brands, from some of the most noted Ohio vintners, and the best judges present unanimously pronounced it superior in aroma and purity of flavor to any native samples yet presented to their notice, and predicted for it the highest degree of excellence, when it shall have attained the proper age.

"The business of grape-growing and wine-making may now be considered most auspiciously started in Georgia and the South; and it only remains for those who prefer the pure and wholesome juice of the grape to the vilely adulterated mixtures of commerce, and who wish to aid in the successful development of a most important and promising enterprise, to give the matter their countenance and support at the outset; and thus secure to the South, in a few years, an entirely new source of large income and profit."

BUTTER MAKING.—SWEET CREAM.

A WRITER in the *Ohio Farmer*, discussing the propriety of allowing cream to turn sour before it is churned, says:

"If milk be churned as soon as drawn from the cow, and butter be separated, the buttermilk will be found to contain acid, though it may not taste very sour. Whether this lactic acid is a cause or an effect of the separation of the butter, has not been satisfactorily settled; but that it is always present after butter has been churned is a well ascertained fact, and this fact all scientific books in the dairy assert. Johnson, Ballantyne, Ayton and Traill, all teach that "butter made from sweet cream is less in quantity and requires more labor to produce it, and is therefore unprofitable."

We do not quite agree with this. We cannot imagine why the presence of a minute portion of lactic acid should be presumed without evidence to promote the gathering of the butter. That should be proved ere it is put forth. We know that nice tests often discover the presence of lactic acid in *new milk*, and we have good reason for believing that the process of churning, by which the temperature of portions of the milk must be somewhat affected, should tend to increase the amount of acid. We are not satisfied that the presence of lactic acid is either the cause or the effect of the separation of the butter. Nor does the fact that sweet cream requires longer churning than sour cream, *if it be a fact*, show that it is less economical. The quickest process is not always the best. Besides, our scientific men are not

the best authority on such questions. We should much prefer the opinions of judicious dairymaids. We have facts, from such sources, which we would offset against a host of mere chemists, though ever so "scientific." Ask the dairymen and women of Orange county, so widely distinguished for its good butter, and the information they would give would not strengthen the doubts which this writer suggests.

We do not believe that the presence or the absence of lactic acid can have any effect on the "quantity" of butter. The butter is there confined in sacks, and lactic acid cannot increase it, nor can butter produce lactic acid. Science cannot begin to give a reason why it should be supposed to do so. Facts show that the best butter, the butter that with a given amount of washing will retain its sweetness the longest, is from sweet cream.

But we doubt whether sweet cream requires more labor to "produce" butter than sour cream. Each little sack must be broken, and its contents gathered. We can see how the presence of *very* sour milk might hasten the process of gathering or collecting the butter, after it has "come;" but this is not what the chemists mean to say; and whatever they mean, their opinion is of no more value than that of any mere professor of science, who may be fond of his own theory. Such questions are for actual practical churners to determine, who use various kinds of churns and various qualities of milk and of cream, and so far as our experience, which is not small, and our inquiries, which have been extensive, can elucidate this question, the conviction is full and complete, in our minds, that it is desirable to have sweet cream for butter that is to be kept a long time. Sour milk does not of necessity make sour butter, but the presence of sour particles in the butter made from sour cream cannot be *certainly* avoided by almost any amount of washing, and there may be enough present, after very frequent washings, to convert the whole, ere long, into a rancid mass. Hence we go for sweet cream.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

COMPARATIVE VALUE OF CROPS.

Mr. Editor:—We have kept an account the past season of the cost of cultivating different crops, thinking it may be interesting to some of your readers. We make the statement as brief as possible.

Rye ½ bushel sowed Sept. 16, 1854, on corn stubble. Quantity of land, half acre:

Seed and Cultivation, - - - - - -	$3 38
Seven bush. Rye, - - - - - - -	8 75
Leaving as profit to land,	$5 37

Wheat sowed April 24th, 1855, where corn had grown the previous year. Seed, 1 bush.; land, one acre; injured by weevil and worms.

Seed and cultivation, interest, taxes, etc., - -	$12 50
12 bush. of wheat at $2 25, - - - - -	27 00
Profit to land,	$9 50

Corn No. 1, ploughed Nov., 1854, 8 inches deep, a sod, manured 25 loads of compost and manure on the furrow, and in the spring, and harrowed well, had been in grass from 6 to 15 years; land, 183 rods.

Whole expense of cultivation, interest on land, taxes, etc., - - - - - - - - -	$35 09
60 bush. shelled corn at $1 25, - - - - -	75 00
Top stalks and butts, and 12 bush. small corn on the ear, - - - - - - - - -	23 00
Profit to land,	$62 91

No. 2, about $\frac{2}{3}$ in clover the previous year, had been mowed twice, and winter killed, $\frac{1}{3}$ under the plough for 3 years, with a rotation of crops without manure.

16 loads of corn-manure spread broad-cast and ploughed 8 inches deep in May, 1854; land, 126 rods.

Whole expense of cultivating, interest, etc., - -	$27 55
55 bush. of shelled corn - - - - - - -	68 75
Top stalks, etc., and ten baskets of small corn, - -	20 00
Left to land,	$61 20

Remarks.—Corn planted from May 16th to 23d, 3 feet by 2½, 3 stalks in a hill. A cultivator was passed between the rows 4 times; 4 bush. of plaster were applied soon after it come up to both pieces, and hoed twice.

Stalks topped from Sept. 4th to 13th, and well secured; harvested from Sept. 25th to Oct. 16th.

Potatoes No. 1, in pasture, perhaps for 20 years; ploughed in Nov. 1854, 6 inches deep; land, 128 rods; harrowed well in the spring; seed, 4 bush., one piece in a hill; hills, 2 by 3 feet, cultivated and hoed once, and once manured. Two bushels of plaster applied before hoeing.

Whole expense, interest, etc., - - - -	$18 40
100 bush. potatoes at 40 ct.s, - - - -	40 00
Left to land,	$21 60

No. 2, a piece of moist, cold land; in all applied 5 loads of coarse manure broad-cast, and ploughed 4 inches deep; then applied 5 loads of earth from a spot where an old house had stood, and harrowed well, and planted 1½ bushels of the Oregon potatoes, May 28th, applied 1 peck of plaster in the hill, hills 2 by 3 feet, 1 piece in a hill. Cultivated and hoed twice; quantity of land, 34 rods.

Whole expense, etc., - - - - - -	$9 50
40 bush. potatoes, - - - - - - -	16 00
To land,	$6 50

This crop was injured by frost; potatoes no more than three-fourths grown, but a variety we believe free from, under all situations a late potato, requiring a long season and high manuring. I have cultivated them three years.

Remarks.—You will readily see at a glance the crop that pays best, and that will furnish the largest amount of fodder, for manure for succeeding crops. Our estimate of the value of small corn and fodder is lower than it ought to be in comparison to the price of hay, worth from $18 to $20 per ton in town.

We charge nothing for manure in the yard, only the labor of drawing it, being what the land is entitled to. No. 1 and 2 of corn is increased in value for the four succeeding crops perhaps 20 per cent., and probably No. 2 of potatoes. No. 1 of potatoes is not increased in value, but probably will bear a fair crop of corn next season, and then will be stocked with clover and to pasture again. We have charged the different crops one dollar per day board, included labor performed mostly by myself.

Epping, N. H., December 12, 1855. D. L. Harvey.

VARIOUS USES OF ARTIFICIAL AND MINERAL MANURES.

At the suggestion of a subscriber, in our last number, we described the various modes of applying guano to the soil. We propose to extend these suggestions to other mineral and artificial manures.

1. POUDRETTE AND NIGHT SOIL.

Night soil should always be mixed with powdered charcoal, or pulverized peat, or with lime or gypsum, to overcome the odor and retain the gases. It may then be mingled freely in composts, and applied to the soil, scattered broadcast, or in hills, like any other manure. But the concentrated poudrette should not be in contact with the seed in large quantities.

If poudrette is applied in the hills, only a tablespoonful should be placed on a hill, and this not in a pile but scattered, either before or after the seed is dropt. Potatoes will bear a more liberal allowance than corn. For melons, cucumbers, squashes, etc., a large hole should be dug two or three feet in diameter, and poudrette be scattered freely, and thoroughly mingled with the soil, which should be made mellow for a foot or more in depth. The seed may then be placed in a circle around the hole. For cabbages, a handful may be applied to each root. For carrots, beets, etc., the poudrette may be mixed with the seed before it is sown, and both dropt in the earth together. For a crop of oats, rye, etc., twenty or thirty bushels may be spread over an acre, and harrowed in before the grain is sown; or it may be ploughed in, or it may be broadcast afterwards as on grass lands. On grass land it may be scattered broadcast, at the rate of thirty bushels per acre, more or less, and this should be done just before a shower. It may applied to grape vines, trees, etc., by scattering a half peck or more over the roots, and covering and mixing it by the spade, etc.

It is better to use poudrette in connection with farm-yard manure or guano, rather than alone. It "stimulates" for a time very highly, but is not so durable in its effects. Hence it is better for the land, to use it in connection with other manures. It may also produce an abundance of leaf and stem, and afterwards fail to secure fruit and grain.

Night soil requires the same management as poudrette; though exposure to a bad odor may sometimes require more caution in the application of it.

GYPSUM OR PLASTER OF PARIS.

This is more generally applied in the hill, for hilled crops. A tablespoonful or so may be placed in a hill. Prof. Johnston says that if it be mingled with common salt, when applied to clover, beans, peas, etc., it will

be much more efficient; but we have not seen it so applied. The salt may be one half the weight of the plaster. Gypsum may be dissolved in water; 50 gallons of water will dissolve a pound, and applied in this form to any crop. Gypsum is however more generally efficient on clover and other grasses, peas, beans, etc., than it is with grains, turnips, or other green crops. It is also more useful on light and dry soils than on clay. It is well, also, to alternate the use of this with animal manures. When sown with grain, or a bulk equal to that of the grain, 200 or 300 pounds to the acre may be thus applied. For corn, potatoes, peas and beans, etc., in the hills and to grass lands, five or six bushels per acre may be properly used.

Gypsum is very useful also if mixed with barn-yard manure, whether it be daily or frequently sprinkled over it, or mixed with it when it is turned over, preparatory to using it. It is also useful when sprinkled over the floors of stables, in fixing gasses, as well as by its own action as a fertilizer. This is perhaps as important as any other form of applying it.

Fish, Flesh, and other matters like these, consisting of very concentrated manures, should be mixed with six or eight times their weight of earth or other compost. A liberal proportion of powdered charcoal is advantageous. Cover a dead animal with powdered peat, muck, leaf mould, and the like, and the result is a very efficient manure. Dry gypsum will also be very useful in confining the gases and preventing a bad odor. Charcoal is of equal value. A little quicklime is also useful. Fish should never be spread over the ground and left uncovered. They produce evils of various kinds, and their fertilizing properties are wasted. They should be placed in layers, and covered with dry mould or muck, with charcoal or peat, if at hand, and thus alternating, be suffered to remain till thoroughly decomposed. It may then be used broadcast or in hills.

In clay soils, fish may be ploughed under. The clay has power to retain the gaseous elements. From six to ten thousand of the smaller fish, like Menhaden, may be ploughed into an acre. Sometimes, on such soils, entire fish are applied in the hill. One fish, with a little wood ashes, or yard manure, or two or three fishes applied alone, may be buried in a hill of corn.

The effects of fish when used alone are but temporary. Their influence is more permanent when used in connection with charcoal, ashes, guano, gypsum, etc.

EXHIBITION AT PARIS—PREMIUMS AWARDED TO AMERICANS.

This great exhibition has been closed. The public ceremonies were had on the 15th of November. The Emperor made a speech, which appears from the reports of it to have been chiefly political.

After the entry of the Emperor and his chief officers, ministers of State, the imperial household, the imperial commission, etc., an enormous orchestra seated in the gallery over the throne, composed of 1,300 persons, under the direction of Berloiz, then executed *L'Impériale*, a cantata composed for the circumstance by Berloiz. After its conclusion, the Prince Napoleon stepped in front of the throne, and read a long address to their Majesties, which was heard by no one but those in the immediate neighborhood. Upon its con-

clusion, the Emperor arose, and in a loud and clear voice made an address which was heard in the remotest part of the immense building.

After the speech, those persons who had drawn the Grand Medal of Honor passed before the Emperor at the foot of the throne and received from his hands their medal. A majority of them also received the decoration of the Legion of Honor.

After the conclusion of this part of the ceremony, their Majesties and suits came down from the platform and passed around the large aisle in the building, where the objects which had gained the grand medal had been placed.

The United States has drawn a fair proportion of medals.

Three Americans were decorated with the Legion of Honor at the Prince Napoleon's, viz.: Mr. Valentine, Chairman of the American Commission; Mr. Marshall Woods, of Rhode Island, Juryman on Fine Arts Department, and Mr. Vattemare, (for services in American Department.)

COMPLETE LIST OF RECOMPENSES AWARDED TO AMERICANS AT THE GREAT EXHIBITION.

Decorations.

W. J. Valentine, Chairman of the American Commission.
Marshall Woods, Juryman on Fine Arts.
Alexander Vattemare, for services in American department.

Grand Medal of Honor, (gold.)

Charles Goodyear, vulcanized India rubber.
C. H. McCormick, reaper.

Medal of Honor, (gold.)

Bache & Kline.
Lieut. Maury.
J. A. Pitts, Buffalo, threshing-machine.

Medals of the First Class, (silver.)

Allston.
Mauny.
Tousley & Read.
Manchester Print Works.
Thomas Blachard, timber-bending process.
Samuel Colt, revolvers.
Merriam, Brewer & Co., cotton goods, Boston.
W. Seabrook, cotton goods.
A. W. Ladd & Co., Boston, square piano.
A. Mirmont, New-York, musical instruments.
Singer & Co., New-York, sewing machines.
D. King, Albany, model of river steamer.
United States Navy Department, for collection of ship models, etc.
M. Richmond, Boston, iron-cutting machine.
M. Stewart, New-York, ———.
Hamilton, cotton and wool fabrics.

Medal of Second Class, (bronze.)

J. Bart.
Webb.
Wright.
Ira Jewell, foreman of Mr. Wright.

Wethered & Brothers.
Grover, Baker & Co.
Garside.
Gurney.
Rawdon, Wright & Co.
F. Toppan & Carpenter.
Boisselerie Americaine.
R. C. Elliott, South Carolina, Sea Island cotton.
H. S. King, South Carolina, Sea Island cotton.
M. Mickell, South Carolina, Sea Island cotton.
G. Gemunder, New-York, violins.
T. Seymour, New-York, sewing-machine.
Wheeler & Wilson, New-York, sewing-machine.
Fowler & Preterree, Paris, dentistry.
Ringuet-Leprince, Marcoite & Co., New-York, sculptured walnut dressing-case.
Hiram Tucker, Boston, artificial marble.
Z. Thompson, Vermont.
J. Harraday, New-York, clothes-cutting machine.
Sanborn & Carter.
Wolle Brothers, Bethlehem, Pa., machine for manufacturing paper sacs.

Honorable Mention.

Valentine & Wheelock.
Vergennes Scales Manufacturing Company
Kline.
Engel.
Hollingsworth.
G. T. King.
Lindworth.
Delpit, Madame.
Richard & Co.
McLees.
Meade Brothers.
Hotchkiss.
Jannecy.
N. W. Kingsley, New-York, artificial teeth.
Nicoll.
J. Ross, New-York, artificial teeth.
Russell.
Schortose.
Jones, White & McCurdy, artificial teeth.
N. Day.
T. Maskell, La., sliding keel for ships.
Nathan Thompson, Jr., New-York, life-preserving seat and safety boat.
L. Lacharme, California, specimens of California gold.
Pioche, Bayerque & Co., California gold specimens.
Backus & Peaslee, New-York, rag-washing machines.
B. Moore.
Th. Hodgkin.
Schmitz & Jarosson, New-York, machine for printing cloth.
Nelson Barlow, New-York, planing machine.
Storms Brothers, New-York, preparation and conservation of alimentary substances.

FINE ARTS DEPARTMENT—PAINTING.

Medal of the Second Class.

G. P. A. Healy, Boston, portrait.

Medal of the Third Class.

T. P. Rossiter, New-York, pictures.
Mr. May, New-York, pictures.

KEEPING TURNIPS, ETC, IN WINTER.

THE way I keep my turnips, parsnips, and vegetable oysters in the winter, so as to have them available for use at any time, and to preserve their good qualities from frost or exposure to the atmosphere, may be new to most of the readers of your excellent paper—hence this communication.

As late in the fall as is prudent to wait, I take my old barrel, and put a good layer of dry leaves on the bottom, then put a layer of turnips or parsnips, then another course of leaves, and so alternating, being careful to put in a good supply of leaves between the roots and the barrel, and also between each course of vegetables.

Turnips properly put up in this way will not be *corky*, will keep good all winter, and can be got at any time. Parsnips put up in this manner will be better in the winter and in the spring than if left in the ground as is the common practice; besides, you are not obliged to wait till the frost is out of the ground before you can have a mess. Your barrel of turnips should be kept in as cool a place as possible and still avoid freezing, as they grow unless kept dry and cool. The wind will blow the leaves into heaps soon, when they should be gathered ready for use. Will some one put up sweet potatoes this way and report the result?—*Moore's Rural New-Yorker.*

A NEW ESCULENT IN THIS COUNTRY.

IN May last I received from the Agricultural Division of the Patent Office, the "Chufas or Earth Almonds," known to botanists under the name of "Cyperus Esculentus," with the following notices of the same:

It grows spontaneously in the light, humid soils of Spain, and is cultivated in Germany and the south of France. If planted in May or June they are ready to be harvested in October. They resemble in taste a delicious chestnut or cocoanut, and like them may be eaten raw or cooked. They are chiefly employed for making an orgeat, (orchata de chufus) a delightful, refreshing drink, much used in Spain, Cuba, and other hot climates where it is known. When mashed to a flour, which is white, sweet, and very agreeable to the taste, it imparts to water the richness and color of milk. At Almacero and Albargo considerable attention is paid to the cultivation of this plant, eight acres of land yielding a profit of $3,500 in five months.

I planted the tubers or bulbs according to directions accompanying them. They are now growing vigorously, and very easily cultivated, requiring no special care, and I have no doubt will be as productive as any vegetable grown in this climate. I hope to have seed enough to plant some two acres of ground next season. It is worthy of cultivation as an ornamental plant.—J. V. McCULLOUGH, *Horticulturist.*

INDUSTRIAL STATISTICS.

BIRMINGHAM, CT.—Birmingham Iron Foundry. S. Bassett, President. Employ 50 hands on average; make castings, turbine wheels, trip-hammers, etc. Henry Whipple and Moses Hawkins, foremen.

Tack Factory of Shelton Co. E. N. Shelton, President. Use 42 machines; make tacks of all kinds and sizes. N. H. Sherman, foreman. Also make bolts and nuts, employing 13 hands in this department.

Plane Factory of L. De Forest. Turn out $20,000 worth goods annually; make bench and moulding planes.

Turning Factory of Geo. W. Shelton. Employ 30 hands on average; turn out $30,000 worth yearly; do plain and fancy wood turning. Messrs. Shelton & Osborn, Agents for "Cast Cast-steel Company."

ANSONIA, CT.—Farrel Foundry Co., F. Farrell, Agent. Employ 50 hands on average; turn out $80,000 worth yearly; do work for rolling and rubber and paper mills; foundry connected. M. P. Wilson and E. Butterworth foremen. Make S. & S. M. Colburn's Double Giant Mill.

Wire Factory of Wallace & Sons. Make brass and copper wire, rolled, sheet and plated brass, tubing, kettles, nuts, jack chains, hooks and eyes, etc., etc.; turn out $150,000 yearly. J. S. Riggs, refiner.

Ansonia Brass and Battery Co. J. H. Bartholomew, Agent; J. R. Light, C. D. Allen, Wm. Smith, R. Matthews, and others, foremen; T. E. Miller, refiner. Employ 70 men on an average; do brass and copper work, tubing, stamping, clock movements, etc., etc.

Ansonia Copper Mill. Peter Phelps, Agent; Thomas Whitney, super.; David Coles, foreman; Conrad Struckman, refiner. Have 9 sets rollers; employ 45 hands; make sheet and bolt copper.

Novelty Company. L. Fenn, Agent. Make Fenn's superior axes; turn out 170 daily; business increasing; also do fancy and plain turning in wood.

Cotton Mill of Sewoss & Schenck. Has 18 cards of 36 inches; 26 looms; make seamless bags.

Factory of Frary & Co. Employ 30 hands; make Wakefield's patent corn-planters.

Factory of C. W. Fisk & Co. Employ 8 men, and machinery; make melodeons of superior quality. Sold by John March, Philadelphia, Penn.

SEYMOUR, CT.—Humphreyville Manufacturing Co. Reymond French, Agent; Isaac P. Bottsford, Peter Worth, and others, foremen. Employ 250 hands on average; make augers, plane irons, wrought-iron car work, etc., etc.; machine shop attached has 5 lathes, and other tools in proportion.

New-Haven Copper Co. Geo. De Forest, President; Thomas James, Jr., super. Works have 10 pair rolls; make bolts, sheets, pipes, flues, and white metal.

Rubber Factory of A. G. Day & Co. Work under Goodyear's patent; employ 50 hands; make pencil-cases, letter-folders, etc. Thomas Sault, superintendent of machinery.

Auger Shop of the Upson Manufacturing Co. Hiram Upson, President; H. A. Radford, Agent. Employ 20 hands on average; have 2 trip hammers, 4 fires, etc.; make augers, bitts, etc.

Beacon Dam, Ct.—Beacon Dam Co. Geo. Goodyear, Agent; Elijah Pierce, foreman. Make rubber flasks, casters, tape measures, cork-screws, syringes, pumps, etc.

Novelty Rubber Co. George Langdon, Agent. Employ 40 hands on average; make canes, buttons, etc., of rubber.

Naugatuck, Ct.—Union Rubber Co. J. T. Trotter, Agent. Employ 75 hands; make rubber clothing.

Glove Co. Geo. C. King, Agent. Employ 12 hands; make gloves, mitts, finger cots, shields, etc.

West-Winsted, Ct.—Winsted Foundry and Machine Co. Shop has 8 lathes, and other tools in proportion; foundry has A. A. Perkins, foreman; do job work.

Scythe Factory of Wheelock & Wilder, successors to W. Thayer & Co. Have 3 hammers, 2 stones. Turn out 2000 dozen annually.

Empire Knife Co. Charles Thompson, Manager. Employ 45 hands; make pocket cutlery.

American Hoe Co. Louis R. Boyd, Agent. Make cast-steel hoes for planters and cotton and sugar growers; turn out 10,000 doz. annually.

Forge Shop of Timothy Hulbert has 2 fires and 1 scrap furnace; 3 trip hammers; work scraps; do largest kind of work.

Winsted Auger Co. Charles Spencer, Secretary. Employ 30 hands; use machinery; make augers and bitts.

Beardsley Scythe Co. Francis Brown, Manager. Turn out 5000 doz. annually; make scythes, hay, straw and corn knives.

East Winsted, Ct.—Factory of A. G. Gormans & Co. Employ 20 hands; use machinery; make jewelry.

Winsted Manufacturing Co. John Camp, Agent. Make scythes; turn out 6000 doz. annually.

Clock Shop of Wm. L. Gilbert & Co. Make clock cases and movements; turn out 20,000 annually.

Cook Axel Co. C. Cook, Secretary. Employ 20 hands.

Wolcottville, Ct.—Stockinett Mill. A. G. Brady, Agent. Have 2 sets machinery; make shirts, drawers; employ 100 hands in all, including sewers. Thomas Hollingsworth, foreman.

Union Manufacturing Co. F. N. Holley, Agent; W. R. Slade, Superintendent. 1 mill woolen; have 4 sets machinery; make black cassimeres and doeskins.

Wolcottville Brass Co. Willis Curtis, foreman. Have 6 sets rollers; casting shop and stamping; make brass kettles, rolled and sheet brass, plates and tubes.

Plymouth Hollow, Ct.—American Knife Co. G. B. Pierpont, President.

Employ 80 hands on average; make superior pocket cutlery of all kinds and prices.

Terry's Mill, woolen. H. Terry, owner; John Cady and Ferris A. Castle, foremen. Has 4 sets machinery; make black doeskins.

Thomas' Cotton Mill. Seth Thomas, Agent. Nathan A. Daniels and others, foremen. Have 20 cards of 24 inches; 61 looms; cloth 36 inches: 52 by 52: yarn 18.

Broadbrook, Ct.—Broadbrook Co. 1 mill, woolen; Nelson Palmer, Agent; Wm. Hancock, Superintendent; N. P. Adams, Salmon North, H. W. Phillips, Sylvester Williams, John Wolf, and others, foremen. Mill has 12 sets machinery; 72 looms—10 more to be added; make fancy cassimeres.

Warehouse Point, Conn.—Warehouse Point Manufacturing Co. 1 mill, woolen; N. K. Benton, President; B. Sexton, Treasurer; A. Dennison, Superintendent; F. W. Carpenter, John B. Orcutt, F. C. Whittaker and others, foremen. Mill has 7 sets cards, 4320 spindles, 52 looms; make fancy cassimeres.

Windsor Locks, Conn.—Thread Mill of A. Wilmarth. Has 320 spindles; make thread of all colors and Nos.; make superior thread for whips and to use in sewing-machines.

Wire Factory of Royal Prouty. Turn out wire from 0 to 36 Nos., for cards, reeds, stone, brooms, etc.; make satin, silk and cotton wire, all colors, for bonnets.

Connecticut River Mill, cotton. L. M. Pinkham, Agent. Mill has 16 cards, 3000 spindles; cloth is 28 inches wide, 68 by 72, of yarn Nos. 32 and 36.

Stockinett Mill. Alex. Downie, Superintendent. Has 2 sets cards, 12 knitting machines; make hose and stocking yarn.

Pittsfield, Mass.—Pomroy's Sons' Mills, 2 woolen. L. Pomroy's Sons, agents and owners. Broadcloth mill has J. Daly, James Daly and others, foremen. Mill has 4 sets cards, 22 broad looms; make cotton warp broadcloths. Satinet mill has 5 sets, 36 looms; make cassimeres, cotton warps for printing. C. Hemenway, superintendent; Joseph Daly, Jr., Wm. Daly and others, foremen.

Pittsfield Woolen Co. R. Pomroy, Treasurer; W. F. Bacon, Secretary; S. M. Caldwell, Charles Harden and others, foremen. Mill has 3 sets machinery, 36 broad looms; make cotten warp broad-cloths; warps purchased.

Woolen Mill of S. M. & C. Russell. Mill has 1 set machinery, 10 looms; make satinets; warps purchased; Tillotson Clarkson, foreman. Wadding mill attached has 7 cards; Cornelius Warner, superintendent.

Pontoosac Woolen Co. Geo. Campbell, Agent; Thaddeus Clapp, Jr., manager; Thad. Clapp 3d, superintendent; Amos Armitage, Timothy Cotton, James H. Wylie and others, foremen. Mill has 6 sets machinery, 40 broad looms; make cotton warp broad-cloths; warps purchased.

Cotton Mill of E. & J. L. Peck; has 30 cards; make satinet warps from 1800 to 2000 ends of No. 18 yarn.

Great Barrington, Mass.—Berkshire Woolen Co. A. C. Russell, Agent; Geo. W. Fuller and others, foremen. Mill has 8 sets cards, 82 looms; make plain union cassimeres; cotton warps, which are purchased.

Housatonic, Mass.—Monument Mills. J. M. Seely, Agent. Mill has 16 cards, 1656 spindles, 2 dressers; make satinet warps, No. 18 yarn, from 1500 to 1800 ends. Wm. Black and others, foremen.

GLENDALE, MASS.—Woolen Mill of J. Z. & C. Goodrich; John T. Fenn, superintendent; John A. Lynd, and others, foremen. Mill has 6 sets machinery, 1820 spindles, 60 looms; make union cotton warp cassimeres for printing. Machinery in part is operated night as well as day. Gas used for lighting; made on the premises.

LEE, MASS.—Center St. Machine Shop. J. A. Morey, owner. Has 5 lathes, and other tools in proportion; make paper-mill machinery, and do job work.

Saxony Mills. Platner & Smith, owners; Jonas Holmes, superintendent; cassimere mill has John McKenna, Ephraim French, James Mitchell and others, foremen; 7 sets machinery; make fancy cassimeres. Satinet mill has Aurora, Moree and Castle, foremen; 3 sets machinery, 36 looms; make satinets; warps purchased.

Cotton Mill of Beach & Royce, has George H. Holmes, foreman; 12 cards, 24 inches; 18 looms; make seamless bags.

Machine Shop of Tanner & Perkins; has 13 lathes, and other tools in proportion; make paper-mill machinery, and do job work; foundry attached has 5 hands on average.

SOUTH ADAMS, MASS.—Pollock's Mill, cotton. Wm. Pollock, owner; A. R. Lovell, superintendent. Mill has 32 cards, 3886 spindles; make satinet warps.

Woolen Mill of B. F. Phillips & Co., owners and superintendents; Wm. Brown, John M. Morin and others, foremen. Mill has 3 sets machinery; make satinets for printing; warps purchased.

Brown Mill, cotton. Plunkett & Brown, owners. Mill has 87 looms; cloth 28, 60 by 56; of yarn No. 28.

Maple Grove Mill, cotton. R. Leonard & Co., Agents; Curtis Rider, superintendent; Charles Tower and D. M. Randall, foremen. Mill has 8 cards, 30 inches; 1600 spindles, 48 looms; make prints, 28 inches wide, 48 by 52; yarn 28.

Adams' Mill, cotton. Adams, Brothers & Co, Agents; Myron Trow, foreman. Mill has 9 cards of 36 inches, 1380 spindles, 40 looms; cloth is 37 inches, 44 by 44; of yarn 16.

Arnold Mill, cotton. S. L. Arnold & Co., owners. Mill has S. W. Howland, superintendent; S. A. Hunt, foreman. 8 cards of 36, 1860 spindles, 56 looms; cloth 28, 56 by 60; yarn 29.

Greylock Paper Mill. L. L. Brown & Co. Has 6 engines; make nice plat papers.

Plunkett Mill, cotton. Plunkett & Wheeler, Agents; Alonzo Wright and others, foremen. Mill has 16 cards of 18 inches; 1808 spindles, 60 looms cloth 28, yarn 27.

CHATHAM FOUR CORNERS, N.Y.—Repair Shop of Harlem and Troy Railroad. John J. Ferris, master mechanic. For the above road repairs are made in iron and wood shops; works are enlarging.

CLOCK STATISTICS.

WEST MERIDEN, CT.—Factory of Bradly & Hubbard, owners; turn out 100 superior clocks daily. Movements purchased. Nathan L. Bradly, Agent.

MERIDEN, CT.—Factory of F. Rodolph; turn out 100 clocks daily. Movements purchased—sold to Coe & Co., Boston and New-York.

STORM'S CLOUD ENGINE.

In our last number, we mentioned this as among the valuable inventions exhibited in the Fair of the American Institute. We believe the invention worthy of more extended notice, and that machinists will find something in it to lead them to a careful study of its theory.

Probably we do not make sufficient account, as yet, in the investigation of steam, as a motive power, of the agency of electricity. It may be excited where we have not yet discovered it, and, on the other hand, we may not always avail ourselves to the greatest extent of its tremendous power. This fluid may be within our reach when we little suspect it. A trifling change in the arrangements of an engine might bring it into play, with almost resistless force, where its influence is scarcely known.

The doctrine of *latent heat* is so exceedingly mystical, the nature of it, or rather its state, when latent, is so utterly beyond our conception, that it would not be strange if future experiments should develop some connection, that we have not yet dreamed of, between the action of electricity and the development of latent caloric. Mr. Storm, however, is perhaps too explicit, with our present knowledge of the subject, when he says, "'Latent heat' of steam or of any other artificial vapor generated by heat, in a close vessel, is not such strictly, but would be more properly expressed as combined electricity, heat and electricity being, under certain conditions, *convertible* and different phenomena of the same cause." But we prefer that he should give his own explanations in relation to the power of steam and of his engine. He says:

"Steam is an *artificial* and nearly invisible vapor, never existing outside of the closed space in which it is generated.

"An atom of steam is nearly a solid spheroid (if the term solid may be applied to a *liquid* atom,) while the particles of all natural vapors or clouds are 'vesicular' or hollow. Steam, in escaping from a boiler into the atmosphere, instantly assumes this latter form, and thereby becomes visible—steam itself being always transparent like air. The atoms of steam being thus rendered hollow, vesicular, or *inflated*, necessarily occupy more space and possess a higher elasticity. And while in ordinary steam all the '*latent*' portion of its heat, amounting to about three-fourths of all expended, has to be invested in the water before it has *any* elastic power at all—and where—as this 'latent heat' passes through and away from the engine with the escape steam, without undergoing any change of condition whatever, or being in any manner brought into action—it is consequently wasted. And, as it is well known that '*vesicular*' vapors have only a trifling amount of 'latent heat' for a given amount of elasticity and volume as compared with other vapors, and that all other vapors whatever, have a total power just in the proportion to the amount of their 'latent' heat; it is therefore evident, that by converting such artificial vapor or steam from any liquid into the vesicular form, or natural steam, such as constitutes the *clouds* of the atmosphere, and which is readily effected by allowing them to combine, by the natural affinity which exists, with air or other permanent gaseous body, thus imitating nature, an immensely less quantity of caloric must be consumed.

"CLOUD AS A MOTIVE AGENT.

"The following elucidation of the cause of the great expansion resulting from the admixture, in any closed space of air and steam, may be more

satisfactory to exclusively practical minds, because involving no abstruse scientific reasoning.

"That the heat or *temperature* of the steam has little to do with the expansion resulting from the mixture of steam and air, will at once be evident from the well-established fact, that it requires about 540 degrees Fahrenheit to double the volume of a given quantity of air at the ordinary atmospheric temperature (say 60 degrees,) as a starting point.—See 'Effects of heat on the elasticity of the gases,' article, Pneumatic—*Brande's Encyclopedia*, page 947. This temperature, which in steam would give the uncontrollable pressure of about 1000 lbs. per single square inch, or about 65 atmospheres, merely doubles the tension of a *confined* measure of air, about twice this quantity of caloric being necessary to supply its expansion to a double *volume*.

"But the same air, if allowed to form vesicular vapor by contact with heated water (or steam,) will be double in volume, starting from the same point, (60 degrees,) by the time it has reached 192 degrees, or 20 degrees less than the boiling point of water in an open kettle—or less than the formation of steam of a single atmosphere of pressure, and incapable of any force till the atmosphere is removed. And to form even this weak steam five and a half fold more time and five and a half more fuel must be consumed than that required to expand the air to double the *volume* by the vesicular process just mentioned; no "latent heat having been invested in that case. The corresponding increase of *tension* at the same time, instead of being merely double, is over 30 fold!

"These facts are matters of standard record, and were brought to light by efforts to ascertain why a very trifling leakage of air into the condenser of the steam-engine created so much back tension as to almost annul the vacuum.—See *Dalton's experiments*, *Philosophical Transactions*, and *Tredgold on the Steam-engine* (*marine*,) page 78.

"The steam world is challenged to take its choice between the soundness and value of the cloud principle (vesicular vapor *versus* spheroidal vapor, or steam,) or the repudiation of its own highest authorities.

"That the agent of power here brought into action is electricity, is no new discovery; for it is known to all men versed in the physical sciences, that steam, produced by heat, from whatever source, when coming in contact with the air, organizes at once in the form of vesicular vapor or cloud—this hallow or vesicular form, by a law of optics, rendering it then at once visible. It is equally known, that all such vesicles are electrized and mutually repellant.—See *Saussure*, *Thompson on Heat*, *etc.* *My* discovery is, that the *source* of this electricity, and of that of all clouds, is the *so-called* 'latent heat' of the primarily formed vapor or steam, the conversion of sensible heat, from whatever source, sun or fire, into this 'latent' form, being, in fact, its conversion into 'latent' or *combined electricity*, which is afterwards set free when the change to the vesicular state takes place. That immense torrents of electricity may be developed from steam (whatever be the accepted reason *why*,) it is only necessary to refer as proof to experiments wherein, from a boilder of only a few horses power, flashes of lightning nearly two feet long and too fast to count, are evolved from steam escaping into the atmosphere under a moderate pressure of about 60 lbs. to the inch.—See *Noad's Electricity*, page 7.

"Now, if the tension and volume of the air becomes so great by taking up in vesicular suspension the moderate amount of water it can take up under the moderate pressures and temperatures mention in Tredgold's table hereinbefore cited, what must that result be when the water is heated to a point

corresponding to 70 lbs. guage pressure, in which case it (the air) would take up over 30 times as much, every 27 degrees, doubling its capacity in this respect?—See *Brocklesby's Elements of Meteorology*, page 32, where tables are given, or any similar work.

"And again, what if this water, previously to being so taken up and combined with the air, had been converted into *steam* at that same *temperature* and pressure (70 lbs.,) and which would then be invested with that *fountain* of *all* expansion, the so-called 'latent heat,' which, as the air and steam combined by their own rapid affinity into the vesicular or cloud form, would be set free (not as heat, as the thermometer proves,) but as free electricity of low tension, and so more easily retained by the vesicles, but in great *quantity*, and productive of a correspondingly great volume and elastic power. In a single acre of fog or vesicular vapor there is, although unfelt, sufficient electricity to kill, if concentrated, every animal that might be gathered within that acre.—See *Faraday's Experimental Researches in Electricity.*

"This, simply, be its properties what they may, is artificial cloud, and the agent by which the 'Cloud-engine' is actuated and from which it derives its name—and to the scientific mind, with these universally established data arranged before it—it will be clear that the phenomenon developed by the Cloud-engine involves neither wonder nor mystery, but, on the contrary, has thus far only made a modest *approach* towards just and soundly founded expectations."

In accordance with this theory, Mr. Storm introduces a portion of air, by means of a forcing-pump, into his cylinder, which combines with the steam and produces the remarkable effects described in the experiments of Mr. Allen and other engineers.

CARE OF CHINA AND GLASS.

THE most important thing to do is to "season" either glass or China to sudden change of temperature, so that it will remain sound after exposure to sudden heat and cold. Now, this is best done by placing the articles in cold water, which must gradually be brought to the boiling point, and then allowed to cool very slowly, taking a whole day or more to do it. The commoner the materials the more care in this respect is required. The very best glass and China is always well seasoned, "annealed," as the manufacturers say, before it is sold. If the wares are properly seasoned in this way, they may be "washed up" in boiling water without fear of fracture, except to frosty weather, when, even with best annealed wares, care must be taken not to place them suddenly in too hot water. All China that has any gilding upon it must on no account be rubbed with a cloth of any kind, but merely rinsed, first in hot, and afterwards in cold water, and then left to drain till dry. If the gilding is very dull, and requires polishing, it may now and then be rubbed with a soft wash-leather and a little dry whiting; but, remember, this operation must not be repeated more than once a year, otherwise the gold will most certainly be rubbed off, and the China spoilt. When the plates, etc., are put away in the China closet, a piece of paper should be placed between each to prevent scratches. Whenever they "clatter," the glaze or painting is sustaining some injury, as the bottom of all ware has

its particles of sand adhering to it, picked up from the oven where it was glazed. The China closet should be in a dry situation, as a damp closet will soon tarnish the gilding of the best crockery.

In a common dinner service it is a great evil to make the plates "too hot," as it invariably cracks the glaze on the surface, if not the plate itself. We all know the result—it comes apart; "nobody broke it," "it was cracked before," or "cracked a long time ago." The fact is, that when the glaze is injured, every time the "things" are washed the water goes to the interior, swells the porous clay, and makes the whole fabric rotten. In this condition they will absorb grease; and being made too hot again, the grease makes the dishes brown and discolored. If an old, ill-used dish be made very hot indeed, a teaspoonful of fat will be seen to exude from the minute fissures upon its surface. The latter remarks apply more particularly to common wares.

In a general way, warm water and a soft cloth is all that is required to keep glass in a good condition; but water bottles and the decanters, in order to keep them bright, must be rinsed out with a little muriatic acid, which is the only substance which will remove the fur which collects in them; and this acid is far better than ashes, sand, or shot; for the ashes and sand scratch the glass, and if any shot is left in by accident, the lead is poisonous.

Richly cut glass must be cleaned and polished with a brush like plate, occasionally rubbed with chalk; by this means the luster and brilliancy are preserved.—*London paper.*

STEAM STAGE COMPANY.

Mr. Wm. Webster, of Morissania, inventor and patentee of the ingenuous tube-bending machine exhibited at the Crystal Palace, has acquired a prospective interest in Mr. J. K. Fisher's improved steam carriage; and has issued a prospectus for a company, to be called *the New-York and Westchester Steam Stage Co.*, to run from Fordham to the City Hall. If the carriages work as is expected, thirty or more will be run.

We have carefully examined this subject, and are satisfied that it will prove quite practical. On this particular route, however, it will have a railway to contend with, and therefore may not realize the profit which would attend it if opposed only by horse power, for the whole distance; still, as a third of the railway work is done by horses, we have hope of its being able to compete with some advantage.

If railcars could always have full loads, the immense advantage of the track would place them above the competition of common roads, worked by the same power. But on an average, as shown by the report of the State engineer, they carry a dead weight of more than 3000 lbs. per passenger. Steam stages, with the average loads that may be expected, will not have more than 400 lbs. dead weight, or 550 lbs. total weight per passenger;—a difference which, of itself, will half balance the advantage of rails. Add that the wheels will be more than twice the diameter of car wheels, and therefore have less than half the resistance, (for the same road,) we think they have a fair chance on this route.

The New-York business men who live on that line have, as we understand the case, a strong collateral motive to sustain this enterprise, even though it should not pay a large per centage. The railway does not give them satisfaction, but aims to make them pay for the losses sustained on the long line of this road, and for the bad management of it. They have been, and are every season liable to be, required to pay more and more for commutation, and have less and less accommodation, unless they can start an efficient opposition—an opposition that can rival the railway in speed. When machinery of this kind was in its infancy, it was deemed "absolutely a mechanical impossibility to suspend a steam carriage on easy springs." This difficulty is entirely overcome by the improvements of Mr. Fisher.

We have taken no little pains to inform ourselves on this subject, and we do not hesitate to assert our conviction that it is feasible to operate steam carriages successfully, on many routes, and that this or any other company who shall undertake and carry on such an enterprise in an efficient manner, with only a moderate capital, will be successful.

VERMONT VERD ANTIQUE.

We are happy to give space to the subscriber of the following letter to reply to our comments on this new building stone. It should have appeared in the December number, but was accidentally omitted.

We have no hesitation in attaching to the statements of our friend all the importance that the name of one of thorough business talent and unquestioned and unquestionable integrity can properly claim. We may be proved to be in error. Stranger things have happened. The future will settle the question.—Ed. P. L. & A.

Boston, Oct. 13, 1855.

Gentlemen:—With this I hand you a pamphlet issued by our Verd Antique Marble Co., to the perusal of which I ask your attention. And when you are in this city, I beg you would step into our office, No. 32 City Exchange, and see what you have written about on page 213 of your October No. of *The Plough, the Loom, and the Anvil.*

All that is known of this beautiful material is set forth in the pamphlet alluded to; and the reasons for saying what has been said are drawn from the certificates of the eminently scientific men therein copied.

The quantity of *Lime* in the material, you will notice is very small, its component parts being Silica and Magnesia, which *do not* fuse under an acid.

The pure white lines running through it in every conceivable direction *is not Lime*, but a mineral somewhat new to geologists and chemists, the name of which is not definitely fixed. Dr. Hayes, one of our State assayers, is now thoroughly testing this white material for the purpose of more fully satisfying himself what it really is.

With reference to its being impervious to acids, I would say, that the piece or spot is yet to be found which will show the slightest blemish under the application of the strongest acids. Dr. Jackson's *fire* test is also corroborated

as the quarrying deepens in the ledge. Those who do not believe it can test it for themselves.

Our orders from the Capitol at Washington are nearly completed. The intention of Capt. Meiggs is to ornament *inside* and not outside of the building, which, I scarcely think, you would risk your reputation in denouncing as in bad taste at the present day.

A block 20 feet long, and of dimensions otherwise equal to 1200 cubic feet, has just been removed from its bed, and is now being cut up into columns for the Capitol.

If from time to time you wish for further items touching this newly discovered interest, I shall be most happy to communicate them. Meanwhile remaining your friend and ob'd't servant, WM. S. SAMPSON,

Corner of Broad and State Sts.

RUBBER CLEANING.

MUCH of the rubber coming to our market is exceeding filthy. Such is specially the case with the article which reaches us from the countries of southern Asia, where the gum is produced in largest quantities, and when the production is in the localities of the inhabitants. Heretofore, the purest and most valued article has come to us from Peru, whither it is brought from the interior of the country by persons who seek that interior for the sole purpose of gathering the gum. Wherever found, much of it is impure, and is mixed with particles of sand and with bark. It exudes as a milky substance from the trees, and hardens after exuding, so that a large per cent is sometimes found to be a putrid and acrid mass of half-decayed gum, utterly unfit for manufacturing into useful articles. Only Peru rubber of pure quality could be used in making nice articles. This state of things has continued for many years, while efforts were made to discover modes and machinery for cleansing the imperfect mass. Mr. G. Day, late of New-Haven, Ct., now of Seymour, has invented and patented machinery to cleanse rubber; having by many and costly experiments discovered the best manner of doing the work. We have been made acquainted with the rationale of the process of cleansing, and we have minutely examined the newly constructed, and patented, and expensive machinery used in carrying out the process. It is not our purpose to describe the steps of the process nor the apparatus, but only to say, that the labors and researches of Mr. Day have been followed by satisfactory success. The machinery for cleansing is in operation at a factory in Seymour, Ct.; and there the work of cleansing is going rapidly forward. From May 1st to November 1st, 350,000 pounds were cleansed. During the process, the crude conglomerate of gum, sap, sand, bark and acids, costing about eighteen dollars per hundred pounds, was made worth thirty dollars; each pound being almost doubled in value by being made fit for use in the construction of delicate and highly finished goods. Such is the complete success following the experiments and discoveries of Mr. Day in cleansing rubber. As one consequence of his success, the value of crude rubber has greatly increased. Another consequence is, that more articles

will be made of rubber and they can be made at less cost. Another result which the discovery will bring about is, that an almost worthless production is made to contribute largely to human happiness and comfort.

Caoutchouc is a purely tropical production. It is sought after on the Amazon far away from the sea-shore and the abodes of men; and it is found and brought to market at great cost of life and money. In this part of the tropical world, the gum seems to be nearly exhausted. In Asiatic regions the gum is found near in districts that are inhabited. But this gum is sent away crude and of greatly inferior quality. A mode of cleansing having been discovered, this easily found and gathered Asiatic gum is made to take the place of that from the Amazon, and an inexhaustible supply for all nations in all times to come is found. The community will be great gainers by the results of Mr. Day's ponderous machinery, and his stringent chemicals, and his monstrous laboratory; and we hope that himself may get cash as well as fame for his fifteen years' patient and expensive experiments.

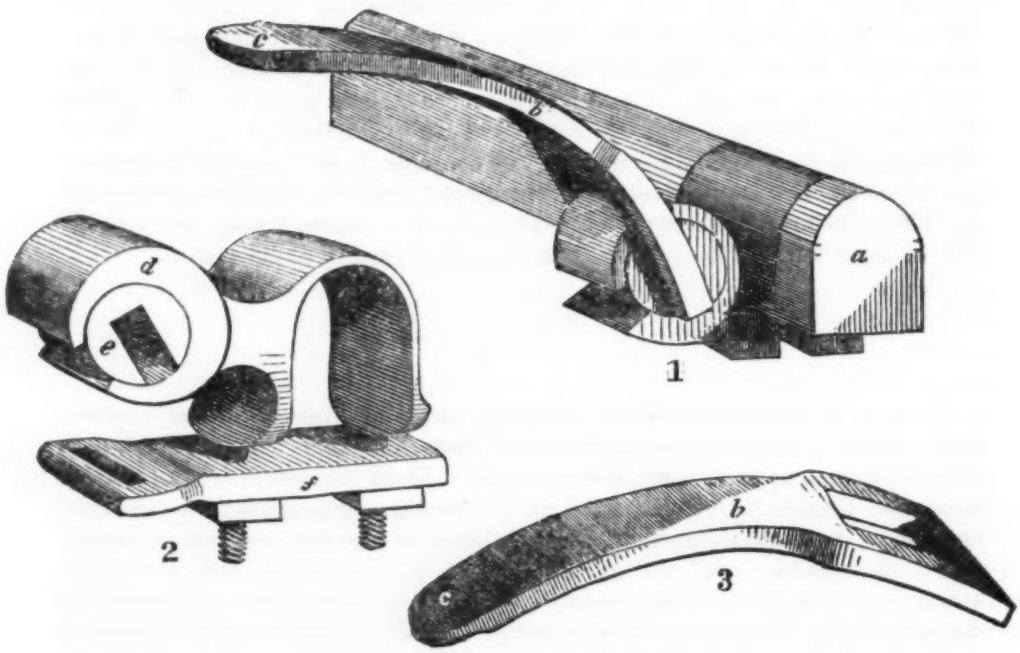
Patent Wash-Tub.—Mr. G. W. Edgecomb, of Lima, Ill., has a patent dated April, 1855, for a wash-tub of peculiar excellence. It is of common size and stands upon its own stool or chair. From the centre of the bottom a spindle is made to rise some 18 or 20 inches perpendicularly. Around the base of the spindle, nailed to the bottom of the tub, are semi-spherical cones, the smaller ends pointing to the base of the spindle, and the larger extending outward. These, made of wood and nailed down, corrugate the bottom of the tub. Above this bottom is a disk, the under side of which is corrugated like the bottom of the tub, making the two corrugated surfaces face each other. In the centre of the disk is a hole, suited to the spindle shooting up from the centre of the bottom. The disk is also furnished with handles applied to its upper surface. The washing is done by putting clothes and water in the tub—putting the disk down upon them, the spindle of the tub entering the hole in the centre of the disk, and then, by means of the handles on the disk, giving it a rotary motion backwards and forwards. The corrugated surface of the disk and bottom do the hand-work of the washing. The cost of the whole aparatus is about *five dollars*. Mr. Ezra Pollard, of Albany, is agent for New-England. It is said that with this machine one person will do as much washing in a given time, as three persons can in the common way.

The Osgood Scale.—The Parker Scale Co., of West Meriden, Ct., of which Mr. H. B. Osgood is the agent, is making scales which have all the essential features of the Fairbank scales with an addition upon which a patent was secured in January, 1852. The patent was taken out in the name of Mr. Osgood, and is used with perfect satisfaction by the company of which he is the acting agent. The patent has reference to an improved mode of making the *lever*, besides which the scales are like those constructed by the Fairbanks.

The Parker Scale Company is making scales of all sizes, from that required to weigh a loaded canal boat or railroad car, down to a letter or a grain of gold.

CARRIAGE SHAFT COUPLING.

BENEDICT'S PATENT.



THE foregoing cut gives various views of a carriage shaft coupling, coming rapidly into use in this country. It is made by Messrs. W. J. CLARK & Co., of Southington Ct., who own the patent, secured in the name of Benedict. The cuts are clear pictures of the invention. Fig. 1 is a view of the coupling attached to a section of the axle, which section is denoted by *a*. Fig. 2 is a coupling with clip as it appears ready to apply to the axle. Fig. 3 is the shaft-iron with eye, which is to be welded at *c* to the strap of iron which lines the under side of the end of each shaft. In Fig. 2 *d* is the barrel in which the tumbler *e* revolves, as marked by the circular line between *d* and *e*. The square slot in the tumbler *e*, in Fig. 2, stands as it usually does when the carriage is in use; and to insert the shaft, it is necessary to turn the tumbler round, so as that the opening corresponds with the opening in the barrel, then raising the shafts to a perpendicular position, raise the eyes of the shaft-irons up into the slots, and bring the top of the shafts forward and down to their proper position, and the coupling is accomplished perfectly.

To remove the shafts is but the work of a moment. It is done by elevating them perpendicularly to the point where they were when inserted. In applying the coupling care should be taken to bend the shaft-iron to a proper curve in the vicinity of *b*, fig. 3, so that the shafts cannot be removed until they are elevated to the highest point without striking the body of the carriage.

The excellencies of this coupling are numerous. It is obviously very safe, as no nut or bolt is used about the coupling to be loosening, as nuts and bolts are apt to do sometimes under dangerous circumstances. It is conve-

nient beyond a parallel, for disconnecting the shafts when desired from the axle. It makes little rattle when worn; and also it is very cheap. Additional information may be obtained by inquiring of the manufacturers. D.

MODEL MILL.

During the last few years some fine mills have been built for the manufacture of woolen goods in New-England, and other fine ones have been in successful operation from ten to twenty years. Among those lately built may be named the Glendale Mill, in Pascoag, R. I., which was erected a year or too since under the personal inspection, and by the special direction of Mr. Lyman Copeland of that place, who has been actively engaged in manufacturing for nearly thirty years; and is well acquainted with the early modes of working, as well as with all the improvements of the present day. This mill is constructed of stone, and it is of sufficient size to accommodate easily and very conveniently, eight sets of machinery. It is high enough in stories to give ample room for shafting, pullies, and belting; and it is supplied with windows to give ample light among the machines in common weather. The machinery, from picker to finisher, is made according to the latest and most approved patterns; it having been built and purchased more with reference to perfectness than cheapness. No improvement developed in the past history of woolen manufacturing, is wanting in the mill to make a perfect fabric with the most economy. The foremen, too, in the various departments of sorting, dyeing, carding, spinning, weaving and finishing, are all men in the prime of manhood, having each learned his profession under circumstances and with machinery adapted to give him great skill in labor. Under the superintendence of Mr. Albert B. Copeland, who has been practically engaged in each single department of the whole process of manufacturing from his youth up to manhood, the mill presents a pleasing aspect, and may well be called a model mill. A visitor passing from one room to another, whilst he admires the cleanliness of everything, and the harmony and the symmetry of the whole, cannot fail to feel that he is inspecting an establishment almost without a superior. Other mills may have more ornament, and others still may be larger, and yet others may turn out more strikingly figured goods, yet but few, if any, can be found which combine so many acknowledged modern improvements. The parts by themselves are perfect, and as a whole make a perfect system.

The sample-book is a curiosity in its way. It is so large as to remind the examiner of the Chinese legend, and its pages are adorned with a "thousand and one" samples of cloth made. All ground colors and all fancies of figures, grave and gay, for the lighted-hearted and the sedate, multiform and brilliant as the flowers of spring, are found on those amply clothed pages. Ingenuity and taste will add to this variety still more in the future, for every day some new pattern is invented, and some new sample is fixed on those pages. If any person wishes to see the latest patented or most highly approved machinery, his time and curiosity will not be lost in visiting Glendale Mill, whose agent and superintendent will give him a kind and courteous reception.

COMPANY OF INVENTORS.

We have received several letters in relation to the plan that we presented some two or three months ago for a sort of joint company, to aid inventors without pecuniary means to present before the public their valuable inventions. We invite others, who are disposed to look into this subject, and to assist in devising the details of the plan, to write to us their views at an early day. We will communicate to such the details proposed, or suggested rather, and invite their coöperation in perfecting the system. They may thus do themselves and others a good service. We have reason to believe that the American Institute, if desired, would be both able and willing to grant facilities to such a company of great service to the members. Now is a favorable time for action.

PORTER'S STONE DRESSING MACHINE.

This is a valuable invention. We are always pleased to see the work which is accomplished by machines performed in the same manner as when done by hand. It is this peculiarity which commends to our judgment the sewing machine by Robinson. It does not sew so rapidly as some others, only doing the work of six or eight people; but it takes the same stitches which are made by the living seamstress, and just that stitch which the nature of the work requires. This close imitation of hand labor is witnessed in the operation of Porter's machine. The following is a description of its parts:

A large iron frame, swinging on a central bolt, contains a cross piece which holds all the chisels and other working apparatus. The position of this frame determines the direction of the chisels, that is, the angle at which they stand in relation to the stone. This central bolt may also easily be raised or lowered, according to the thickness of the stone to be wrought. Above the chisels, and in the same line of direction, are several very large hammers, having a motion of about one inch and a qaarter. Behind the hammers are stout spiral springs assisting in confining them in their place. Motion is given to these hammers by cams placed on a cross shaft, just behind the hammers, so arranged as to cause the hammers to strike, not simultaneously, but in succession. The hammers being raised by the cams, strike with great force upon the chisels, each of which has a motion of one tenth of an inch, chipping off the stone to such a depth as may be required.

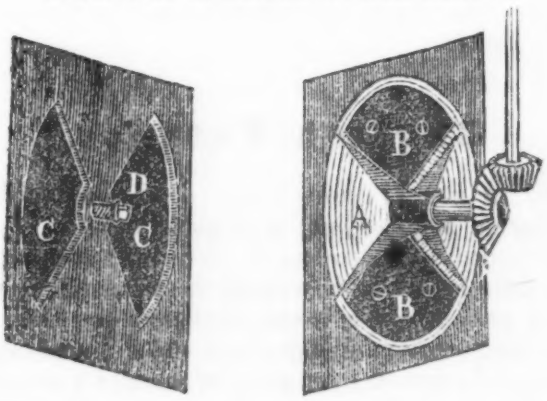
The chisels are of various patterns, each suited to the nature of the work required. Three hundred revolutions per minute may be given.

The stone rests upon a travelling platform, and admits a stone three feet and four inches wide and twelve or sixteen feet long. Or two such platforms may be fastened together. The whole is simple in its construction. The chisels are changed with great facility, and the workmanship is excellent, the stone being left with a good finish from one end to the other. It usually requires to be passed through a machine three times. When one side is finished, the stone is turned over, and other sides are dressed in such style as may be desired. The machine is estimated to do the work of fifty men, or dress one thousand superficial feet of brown store, or nearly five hundred

feet of marble once over in ten hours, allowing the machine to be idle one third of the time.

This machine is now in operation in Fourteenth street, in this city, between the Ninth and Tenth avenues. We commend it to the notice of those of our readers who are interested in such kind of work.

IMPROVED BALANCE WATER-GATE.



This figure is a view of an improved Balance Water-Gate, invented by F. S. Coburn, of Ipswich, Ms., and for which he has taken measures to secure a patent. Figure 1 is an inside view. A in figure 2 is a circular gate with two openings B B, when the gate is turned, so that the openings B B are opposite the openings C C the water passes through. When the gate is closed, as the pressure of the water is alike on all the surface of the gate, it is equally balanced on the screw D which can be so adjusted that there shall be just friction enough to keep the gate water-tight and no more. This gate is so sensitive that the governor will readily regulate the flow of water. The inventor will assign his interest in this invention for any State in the Union, Massachusetts excepted, on terms that cannot fail to be satisfactory.

Allen's Stone Saw Frame.—A gentleman of Dorset, Vt., offered not long since a prize of $10,000 for the best invention to saw stone into pyramidal shapes. Among those competing for the prize is Mr. Allen, of South Adams, Mass, who has invented and constructed a machine for sawing, ingenious and peculiar. His mode of doing the work is to have two saw frames; one suspended over and intermatched with the other, each frame holding its saw, so that one saw will saw one side of a pyramid, and the other the same shape the other side, making the pyramid of any degree of obtuseness or acuteness. Each frame is guided by its own separate guidss, placed on its outer side; and each is suspended from its four corners by chains attached

to the corners and wound round a windlass above. By this apparatus, a large flat stone, marble or granite, can be placed upon the ways of the mill, and by having a succession of saws in both the upper and under frames, operating upon the stone at the same time, the whole slab can be reduced to pyramidal posts at once. Mr. Allen proposes to apply for patents on various parts of his machine, and will be prepared to supply the community, though he may not handle the prize offered in Dorset, feeling that his mode of hanging the saws is one of practical utility, and which will prove in the long run of great value in the stone business.

English Patents.

Improvements in the Manufacture of Varnish.—This invention is intended to produce a superior quality of copal varnish. It is based upon the discovery that copal gum consists of two constitutive parts or ingredients, one of which is entirely soluble in oil and in essence of turpentine, and the other of which is quite insoluble in the substances employed in making varnish. It is this latter portion of ingredient which deteriorates the pellucidity and whiteness of the varnish, especially by taking a brown tinge, by boiling in a copper or other vessel, on an open fire, as the manufacture of varnish is usually carried on. Hence, the object of the present invention is to purify the gum copal, by extracting from it the insoluble part, either by means of ordinary distillation, or by means of a hot-water bath, or else by means of over-heated steam, by applying either of which, the insoluble part is volatilized and condensed in a suitable receiving vessel. The quantity of insoluble matter, viz.,—from fifteen to thirty per cent. of the gum copal acted upon, having thus been expelled, the remaining portion is left to cool or solidify, and is then ready for use, being perfectly soluble in both warm and cold oil, turpentine, and similar matters, with which it will produce a quality of varnish superior to that which is manufactured in the present way.

Improvements in the Manufacture of Soap.—This invention consists in peroxidizing any oxide of iron that may be present in fatty materials, acid or not acid, undergoing the process of saponification by the injection of air or oxygen,—removing the peroxidized iron by means of any vegetable or other acid or principle (such as tannic or gallic acid) capable of combining with it, so as to form an ink or inky solution, and afterwards making soap with the fatty materials thus purified or bleached.

The manner of carrying out this invention is as follows: By means of a force pump or other suitable agent, air or oxygen, in a heated or cold state, is injected into the mass through a perforated coil of pipe in the body of the vessel, which should be made of wood, or lined with sheet-lead; and this injection of air or oxygen is continued so long as may be considered necessary; the time varies according to the degree of oxidation already existing, and can only be ascertained by taking samples and by practice. An infusion or solution of sumach, gall-nuts, or other material capable of combining with the peroxidized iron existing in the materials under operation, is then added

to the mass, and the whole is well stirred together; after which the inky solution is drawn off from the vessel, and the materials are boiled, for about two hours, with a like quantity of pure water, which is afterwards drawn off, and with it any of the inky solution that may have remained in the materials. The soap-making is then proceeded with, and the process completed in the ordinary manner.

The purified soap produced by this invention will be found suitable for dyers, scourers, and others who require a soap quite free from iron,—the presence of which is, in many cases, highly injurious to many descriptions of colors.

An Improved Process for Plating or Coating Lead, Iron, or other Metals with Tin, Nickel, or Alumina.—The first part of this invention consists in a mode of preparing a solution of the metal with which the articles are to be coated or plated; for which purpose they proceed as follows:

For tin, metallic tin is dissolved by nitro-muriatic acid, and then precipitated by an alkali or alkaline salt, preferably by the ferro-cyanide of potassium; sulphuric acid or muriatic acid is then mixed with the precipitated oxide of tin, and water is added thereto. The mixture is boiled in an iron vessel, with a small portion of ferro-cyanide of potassium, and the liquor being filtered, the solution is completed.

Another mode of forming a solution of tin is as follows: The precipitated oxide of tin having been obtained as above described, ferro-cyanide of potassium is added to the oxide and boiled; the solution is then set aside to cool, and filtered; and a stream of sulphuric acid gas is subsequently passed through the solution.

For nickel, this metal is dissolved by nitro-muriatic acid, and the oxide is precipitated by ferro-cyanide of potassium; the oxide is then washed, and cyanide of potassium dissolved in distilled water, is added thereto. The mixture is then boiled, and when cool, it is filtered, which completes the solution of nickel.

For alumina, alum is dissolved in water, and ammonia is added until it ceases to precipitate any more; the alumina is then washed and filtered, and distilled water is then added, and the mixture is boiled with cyanide of potassium. When cold, it is filtered, and the solution of alumina is ready.

Having thus obtained either of the foregoing solutions, the patentees suspend the articles to be covered or plated, by copper or brass rods, in a bath of the required solution, and attach them to the zinc pole of a battery, to the positive pole of which is attached, in the case of a tin bath, a piece of platinum or a pole of tin; in the case of a nickel bath, a bag containing oxide of nickel or a pole of nickel; and in the case of a bath of alumina, a bag of alumina, or a pole of aluminum, or a piece of platinum.

Improved Apparatus for the Distillation of Coal and other Bituminous Substances.—This invention relates more particularly to the retorts or vessels in which the distilling process is carried on for the purpose of obtaining gas for illumination; but it is also applicable to retorts for distilling bituminous or resinous substances for other purposes.

The principal object of this invention is to obviate the objections to which earthen retorts are open. This is effected by coating the retorts internally with an enamel or glaze, which will prevent the gas from escaping through

the pores of the material of which the retort is composed; and will also, by presenting a smooth surface, prevent the carbon from adhering thereto and forming a crust thereon.

Any of the processes which are well known and in use, or that may hereafter be invented, for glazing or enameling surfaces, may be employed for the purpose of the invention.

In order to prevent carbon from depositing and crusting on the internal surface of iron retorts, the patentees also propose to enamel these surfaces of iron retorts by any of the processes for enameling hollow iron vessels; and, if required, the external as well as the internal surface of earthen or iron retorts may be also glazed or enameled.

IMPROVEMENTS APPLICABLE TO MACHINERY FOR PRINTING FABRICS.—The object of these improvements is, first, to obtain greater regularity and uniformity in the supply of color, than can be obtained by the ordinary machinery; and, second, to obviate the necessity of employing the number of children at present required to assist in the operation of printing fabrics. The machine forming the subject of this invention being separate from the printing-press, it will be seen that the improvements are applicable to any machinery for block-printing fabrics.

The color block or table is covered with a cloth of some air-tight and waterproof material, and the required elasticity is imparted to it by means of a collapsible vessel made of India-rubber or other suitable material, provided with a counterbalance weight. This vessel is filled with water or other liquid, and it will, therefore, by means of its counterbalance weight, keep the printing cloth at the required tension. The color is placed in a trough or reservoir, at one end of the cloth; and this latter is supplied with color by means of a horizontal brush or other suitable contrivance, which extends across the table, and is worked backwards and forwards from the color trough over the color cloth by means of a lever; so that at each stroke of the lever fresh color will be supplied from the trough or reservoir at the end,—the apparatus being so arranged, that the cloth and the color which is contained in the reservoir or basin at the end shall be kept together, and when the printing operation is finished and the color is required to be changed, the color cloth can be scraped, and the cover of the color trough or reservoir moved forward by a single stroke of the lever, so as to close the color reservoir, and thus prevent the color from drying by evaporation or exposure to the air, as is the case in the ordinary method of working, in which the color is found to dry in the brushes on the printing frame, or sieve, and in the vessels.

IMPROVEMENTS IN PREPARING LOAF-SUGAR FOR USE, AND CERTAIN APPARATUS FOR THE SAME.—This invention consists in dividing loaf-sugar into systematic, regular, and equal morsels, by means of saws and stamps. To this end the inventor provides a series of straight saws, operating in the ordinary manner, parallel to each other, side by side, at $\frac{3}{4}$-inch or any other required intervals; and he subjects loaf-sugar to these for the purpose of cutting it first into slices or slabs; secondly, cross-wise into square sticks; and, thirdly, crosswise into cubical morsels,—there being thus insured (except in outside pieces) a systematic, equal, and regular division to any size which may be desired. The sugar may be subjected three times to one series of saws; or several series may be employed working in the several directions; or a series may be fixed in a frame and used by hand. Circular saws may be employed, if accurately fixed, and a good deal set, and provided the in-

creased amount of sawdust be not regarded; a series of small circular saws, about six or eight inches in diameter, may be used—the blades being mounted on one spindle, and fixed at the intervals above mentioned.

In some cases the patentee proposes to cast or saw the sugar into slabs one morsel thick, and subject these to pressure between reticulated edged metal stamps or gratings, which cut and crack the slab on both sides to correspond. One grating is made sharper edged than the other, to carry the morsels back with it, to be pushed off in receding, by means of pins fixed behind it; or the slabs are divided by such means, first into sticks, and these again into morsels; or the cast or sawn sticks are divided by such means at once; or they may be divided by the ordinary fixed chopping-knife, with a stop fixed beyond to regulate the size cut off.

The patentee also proposes to cast the loaves of a rectangular form for the above purpose (although this is not essential,) and to cast the sugar in slabs, or in sticks, or in morsels at once.

An Improved Soap called "Saponitoline."—The invention consists in manufacturing a gelatinous soap in the following manner:

"Supposing (says the patentee) that I wish to manufacture one thousand five hundred pounds of the said soap, I proceed as follows: I first pour in a copper boiler about eighty-eight gallons of soft water, and mix with it about one hundred and twelve pounds of crystal soda, or about seventy-nine pounds of salts of soda. Two or three hours after the soda has been in contact with the water, I agitate the mixture, and add to it about one hundred and twelve pounds of common hard or soft soap. The fire being placed under the furnace, I leave the mixture to be heated until the temperature attains forty or forty-five degrees centigrade, when I add to the liquid about seventeen pounds of Russian or American pearlash;—I well mix the whole, and when the soap is nearly dissolved, I suspend in the middle of the copper a white linen bag, containing about seventeen pounds of pounded quick-lime. This linen bag, strongly tied at its upper extremity to avoid any of the matters escaping, must be immersed in the liquid to a depth of about eight inches.

"When ebullition has commenced in the copper, I slowly agitate the liquid mass, and pour therein about five gallons of mucilage of linseed, marshmallow, or pysllium seed—after which, I add seven and a half pounds of borax, or about two and a half pounds of calcined alum. When the whole is well mixed in the copper, and the liquid presents the appearance of being perfectly homogeneous, I leave it to boil on a slow fire during three quarters of an hour. The fire should then be extinguished, and the copper covered over. When the temperature falls to fifty-five or sixty degrees, I pour the liquid into barrels, where it becomes solidified in about twenty-four hours (supposing that hard soap has been used;) if otherwise, it will remain in a gelatinous state."

An Improved Process for Producing Photographic Pictures.—This invention consists, first, in employing a textile or woven fabric instead of paper as the surface on which the picture is to be produced. This tissue or woven fabric must be prepared to receive the ordinary chemical agents used in photographic operations,—and it will be found that it possesses many advantages over paper. For instance—a more even surface may be obtained than when paper is employed; and the liability to tear

or become injured while being subjected to the liquid chemical agents, is much diminished.

In operating upon fine linen cloth, or any other kind of fabric which is capable of being rendered transparent, the inventor first cuts the fabric into pieces of suitable size, and coats them with a paste made of rice-flour, which must be allowed to dry perfectly before submitting the fabric to the subsequent operation. He then takes about six parts of virgin wax, two parts of Venice turpentine, and two parts of the best linseed oil, and having melted the wax in a vessel coated inside with silver, adds thereto the turpentine and oil—taking care to incorporate these substances well together. The fabric is then immersed in this mixture, which is maintained at a moderate temperature; a gelatine, rendered insoluble in fixative baths, may be used for this purpose. The required positive photographic pictures are obtained in the ordinary manner, and fixed in baths of ammoniacal hyposulphites, according to the effect desired to be obtained.

In order to remove any alkaline salts which may remain after the ordinary washings, and would, if left, be injurious to the durability of the picture, the patentee immerses it for about ten minutes in a vessel containing pure alcohol, which possesses the property of depriving it of any injurious matters—and, after being washed in hot water, the picture is ready for the reception of color, as hereafter described.

Excellent results are said to be obtained by treating ordinary photographic pictures in the following manner: Having obtained a positive upon a sheet of paper rendered sensitive by nitrate of silver, and perfectly fixed it by means of baths of ammoniacal hyposulphites, it is treated with boiling water, alcohol, and a solution of potass, for the purpose of neutralizing or removing any chemical or other impurities which may have been introduced in the sizing of the paper, and which would affect the durability of the picture. The paper is then treated with starch of greater or less consistency, according to the degree of transparency desired, and passed through a vessel coated with silver, and containing melted white virgin wax or purified mutton fat. The excess of wax or fat is next removed by placing the picture between sheets of blotting paper, and passing a hot iron over it. The pictures having been thus prepared and rendered transparent, suitable colors are applied thereto by hand, in the usual way of coloring portraits or pictures—with this difference, that they are laid on the back of the transparent fabric. The colors applied should be oil colors of superior quality. When the colors are dry, the picture is attached by glue to a flat and even surface. If it be desired to give greater brightness and effect to the picture, mastic varnish or suitable purified gelatine is applied to its surface.

By the above-described process a very superior picture will be produced, combining the truthfulness of photography with the artistic effect of a painting.

Improvements in Preserving Animal and Vegetable Matters.—This invention relates to means for discharging the atmospheric air from vessels constructed to receive animal or vegetable matters, for the purpose of preserving them.

To this end, the patentee employs the vapors of alcohol, or other liquids which vaporize at a lower temperature than boiling water, in the manner following: He employs, by preference, as the holding or retaining means for the animal or vegetable matters to be preserved, cases or vessels of tin or tin-plate, such as have heretofore been employed when preserving animal

or vegetable matters; except that, according to one method of carrying out his improvements, he applies to the lid or cover of each case a short piece of tin or other soft metal pipe, for the purpose hereafter explained. The vessels or cases being thus prepared, the animal or vegetable matters to be preserved are introduced thereto in a raw state, and, by preference, suspended in a case or vessel by thread or otherwise. The closing lid or cover is next applied or soldered, so as to make the case air-tight, except through the small pipe. A small quantity of alcohol or other liquid, capable of vaporizing at a temperature below that at which water alone vaporizes, is forced into the case through this small metal pipe,—and the case is then placed in a bath of hot water, or otherwise subjected to heat sufficient to vaporize the alcohol or other liquid employed. The vapor, thus generated, will have the effect of driving out the atmospheric air contained therein through the pipe by which the alcohol was introduced thereto. By the application of a light to the outer end of this pipe, when the whole of the atmospheric air has been expelled, a steady blue flame will be obtained from the ignition of the vapor, which will then alone escape. When this is the case, and it may be thus judged that the whole of the vapor is spent, the pipe is closed by compression, and soldered to keep it air-tight.

Another method is to form each vessel with two of such small pipes, and in place of applying the alcohol or other liquid to be vaporized in the case with the matters to be preserved, it is placed in a separate vessel or boiler, to which suitable heat is applied, to generate the vapor and raise the pressure to a few pounds (say about fifteen pounds) to the square inch. From this boiler a pipe conducts the vapor generated to the vessels or cases to be treated. This pipe is provided with a tap for closing the same when desired, and a piece of prepared, or what is commonly called vulcanized, India-rubber tubing, so as readily to connect this pipe of communication with one of the small pipes in a vessel or case containing animal or vegetable matters to be preserved; but other connecting means may be employed. When a connection is obtained between the boiler in which the vapor is being generated, and the case containing the matters to be preserved, the vapor will drive off the atmospheric air from the case by the second small pipe. By the application to this second pipe of a light, the absence of atmospheric air in the case will be ascertained, as when employing the former method, by a steady bluish flame being obtained. The supply of vapor to the case is then to be stopped, and both pipes closed by pinching and soldering.

In carrying out this second method, the patentee sometimes forms the second or escape pipe from the vessel or case containing the matters to be preserved, sufficiently long to be bent over and dipped into another vessel; and when the vapor has expelled the atmospheric air, as explained, the end of this second pipe is dipped into a vessel containing liquid gravy, or gelatine or other matter, which, from being somewhat heated, is for the time in a fluid state. At the time of applying the second pipe to the gravy, gelatine, or other fluid, the supply of vapor to the case is cut off,—when, by the condensation of that vapor, a vacuum or partial vacuum will be created in the case, and the liquid gravy, gelatine, or other matter will flow in by the second pipe to aid (by covering the matters to be preserved) in excluding the atmospheric air. This method will be found very beneficial when treating cooked meats—as boiled beef, for instance—as well as in the preservation of soups and other liquids.

The patentee claims the employment of alcohol, or other liquids which vaporize at a low temperature—that is, below that of boiling water—as a

means for discharging the atmospheric air from vessels or cases containing animal or vegetable matters to be preserved.

AN IMPROVEMENT IN COMBING WOOL AND OTHER FIBRES.—This invention is applicable to the carrying comb of a machine, in which a circular or endless comb is employed, as is now very commonly the case. The improvement consists in applying a curved or bent plate (of a corresponding radius with the circular or endless comb) to push the wool or fibre on the carrying comb in a curved form towards the circular or endless comb, so that the wool or other fibre may be deposited equally in the circular or endless comb.

The patentee remarks that as the nature of wool-combing machines to which his invention is applicable,—viz., those called Liester and Donisthrope's patent machines—is well known, it will only be necessary to explain the manner of applying a bent plate to the carrying comb of such machines. The carrying comb, he says, is, as heretofore, moved to take a tuft of wool from the nippers, and is then moved to the circular comb, and caused to deliver such tuft of wool into the teeth of the circular comb; and the only change made in the working of these parts is, that by means of the curved plate applied to the side of the carrying comb next the circular comb, the tuft of wool, immediately after it has been taken by the carrying comb, is, by the bent plate, moved into a curved line across the carrying comb,—such curved line corresponding with the curvature of the circular comb. The curved plate is carried by a stem, which enters the rod on which the comb is mounted, which for this purpose is made hollow; and the curved plate is, by a spiral spring acting on its stem, constantly drawn inwards. The curved plate is to be moved outwards by any suitable mechanism, immediately after the tuft of wool has been taken by the carrying comb from the nippers; and the curved plate is immediately afterwards to be released and withdrawn by the spring, so that the curved plate may be out of the way when the tuft of wool is delivered from the carrying comb into the circular comb.

IMPROVEMENTS IN THE MANUFACTURE OF IRON AND STEEL.—This invention is applicable to the reduction or smelting of the ores of iron, to the smelting and puddling of pig or plate-iron, and to the manufacture of bar, plate, rod, and sheet-iron, and iron intended to be afterwards converted into steel.

For the purposes of this invention the patentee employs a close furnace, instead of the open furnaces hitherto employed in such manufacture; and to the furnace valves are adapted, for regulating the heat required for smelting the ores therein; and the smoke and gases from the furnace are employed for drying purposes (such as the drying of the fuel,) by conducting off the same through a pipe inserted into the side of the furnace near the top thereof. In connection with the closed furnace the patentee employs air chambers, in combination with either hot or cold blast, for the purpose of creating the necessary draught in the furnace, instead of employing a machanical blast only when such furnaces are used for "roasting" or "torrefying" the ores of iron; and when the furnace is not required to be used for this purpose, but only for the smelting of the ores of iron, the air chambers may be closed by dampers, suitably placed and connected therewith. The fuel employed for the reduction or smelting of the ores of iron, and the manufacture of bar, plate, rod, and sheet iron, and steel, is peat or vegetable

carbon; either peat in its natural state, or compressed peat, or prepared peat, formed by mixing together about equal proportions of peat and small anthracite coal, and compressing the same together into a solid mass by means of mechanical pressure; or a compound of the refuse turf or peat fuel, heretofore considered as waste, dissolved in a pit into a pulp, and then moulded into "peats" or blocks.

THE APPLICATION OF A NEW OR IMPROVED MATERIAL OR SUBSTANCE TO THE CONSTRUCTION OF CERTAIN PARTS OF MACHINERY.—This invention relates, firstly, to the employment of an efficient substitute for the wood and metal ordinarily used in certain moving parts of machinery; which substitute, besides possessing persistent qualities equal to those substances when similarly applied, will, from its lightness and strength (without being subject to crack like wood,) and capability of being moulded into any required shape, offer to the mechanical engineer advantages superior to metal or wood.

It is well known, that in constructing the spindles of roving and spinning machinery, and other parts connected therewith, it is desirable to make them as light as is consistent with strength and durability, in order to obtain great speed with the least possible wear and tear expenditure of motive power. For this purpose the inventor proposes to apply to such use a composition of recent introduction into the arts, and consisting of a preparation of India-rubber and sulphur, with or without shellac, or of gutta-percha and sulphur, subjected to a high degree of heat, and thereby converted into a hard and persistent substance.

In constructing spindles according to this invention, it may be found desirable to cast or mould the warve or pulley with the spindle; and to reduce the elasticity, or rather to give any required amount of rigidity to the spindle, a core of iron or steel wire may be introduced into the mould, and caused to unite with the plastic material. In manufacturing the feeding, drawing, and other rollers of preparing and spinning machinery, the rollers are cast in suitable moulds (with fluted or plain peripheries,—a metal rod, which is to form the axle of the roller, being introduced as a core into the mould.

The employment of this hard compound in the manufacture of shuttles (for looms) will be found to offer many advantages, from the facility with which the ends may be tipped with metal, and the cop or bobbin holder may be attached. These pieces are to be introduced with the compound, in a plastic state, into the shuttle-mould, and a union of the compound with the metal will be readily effected by pressure.

Where great lightness with durability, without the liability of cracking, is desirable, as in the manufacture of bobbins or other such articles, this may be obtained by introducing into the above-mentioned ingredients of the compound, while yet in course of manufacture, cork-dust or chips, sawdust, cotton waste, or other vegetable fibre, in the proportion, say, of about one part, by weight, more or less, to two parts, by weight, of the other combined ingredients.

The articles, when moulded to the required shape, are submitted to about 300° Fahr, for about six hours, after having been packed under pressure in moulds or iron boxes, in a bed of fine plaster or soapstone, ground to an impalpable powder. In making the plastic material for the aforesaid purposes, the following ingredients, in the proportions specified, may be employed indifferently to produce the like result, viz:—One part, by weight, of

sulphur, to two parts, by weight, of India-rubber or gutta-percha, or one part, by weight, of India-rubber and of gum-shellac to one part, by weight, of sulphur.

Secondly, this invention relates to the employment of the hard persistent material produced, as above mentioned, as a substitute for the brasses or metal filling of bearings of machinery; and, in order to adapt it the better to this purpose, from seventy-five to one hundred per cent. more or less (by weight) of plumbago or black-lead is added, during the manufacture, to the component parts of the material; and thus a substance incapable of abrasion by friction, but susceptible by that means of a higher polish, is obtained The bearings are moulded in the manner above described, and when moulded are in like manner subjected to heat, under pressure, for the purpose of effecting the conversion of the plastic compound into a hard substance, and that without injury to the form of the moulded article.

An Invention for Preserving Meats.—This invention relates to the preservation of animal and vegetable food and spices by the desiccating process, and consists in first desiccating the meat in small portions, either in a vaccuum or by the aid of heated air. The desiccated portions are then pounded and reduced to a powder, which is again desiccated—thereby effectually removing every particle of moisture therefrom, and consequently rendering it less liable to become decomposed after long keeping.

The preservation of meat by drying it, is a process that has long been known, but it has not been brought into general use, as, in consequence of the meat being dried in pieces, whether the drying be effected in vacuo or by means of hot air, all the conditions necessary to effect a good and long preservation are not obtained, by reason of the drying being imperfect and incomplete. The meat consequently retains a certain amount of moisture internally, which will eventually cause decomposition to take place.

By grating or otherwise reducing the meat, previously dried in small pieces, a powder is obtained, which, by being submitted to a second drying process, is completely deprived of moisture. This mode of preparation, without interfering with the nutritive qualities and original flavor of the meat, has the advantage of considerably reducing its bulk, by the subsequent compression to which it is subjected, whereby it is rendered much more easy of transport. Seasoning of all kinds is also submitted to the same treatment, namely, first drying and then reducing to powder, which powder is again thoroughly dried. The inventors also propose to combine meat powder with vegetable tablets, by means of compression, so as to obtain a single product, which may be termed compound meat and vegetable tablets.

In place of simply preparing the preserved vegetables in combination with the lean portions of meat, it is proposed to combine them with fat in the following manner:—The vegetable tablets having been prepared in the ordinary manner, they are submitted to successive immersions in soup, and allowed to dry after each immersion, either by artificial or natural currents of air. There is thus formed over the tablets a layer of concentrated soup, which layer, of course, varies in thickness, according to the number of immersions to which the tablets have been subjected. This covering, when properly dried, forms an even coat over the entire tablets, and other coverings of lead or paper may be dispensed with. When the tablets are to be used, the covering can be easily dissolved in warm water, which is thus formed into soup. These improvements are of great importance in the preservation of vegetable tablets, as the tablets thus prepared contain in themselves all

that is necessary for a meal, and all further cooking is dispensed with. These tablets may be made of any nutritive preserved substance, and of any convenient size.

AN IMPROVED METHOD OF PREVENTING THE ALTERATION OF BANK-BILLS.—One of the most common methods of counterfeiting bank-notes or bills consists in erasing the figures which indicate the denomination of the note, by rubbing with the hand or otherwise, and reprinting or pasting upon the surface so prepared, other figures indicating a higher denomination. Thus, the word or figure "five" may be erased, and upon the surface which it occupied "fifty" or "one hundred" may be printed. Alterations of this description easily deceive the public, as, when well executed, they can be detected only by the initiated, and upon very close examination. To render this species of alteration impossible, by affording to the uninitiated a ready means of instantly detecting it if practiced, is the object of the present invention, which consists, in so imprinting into the body of the paper, the character or words which indicate the denomination of the note or bill, that it can only be erased by the total destruction of the paper, and cannot be replaced or imitated even if it were found possible to erase it. This is accomplished, either by a process analogous to that which is known in the manufacture of paper as "water-lining," or by printing the paper as it is manufactured, with the required characters or figures, by a peculiar process, which causes the color to penetrate entirely through the body of the bill or note, so that it cannot be removed without destroying the texture of the paper itself.

During the process of manufacturing the paper, and while yet in a soft pulpy state, it is imprinted with characters or letters indicating the denomination of the bill, "five" for a five pound note, "ten" for a ten pound note, and so on, for notes of other denominations. This may be accomplished in various ways, as follows:—First, by water-lining in the ordinary way, with wire secured to the vellum, so arranged as to impress the required characters upon the paper; or the same effect may be produced by means of types, slightly raised upon the surface of a cylinder, which is caused to bear upon the web of paper while it is still soft and impressible, and thus indent the required characters into the body of the paper,—the velocity of the surface of the cylinder being exactly equal to that of the web of paper as it passes through the machine. To render the characters thus produced more apparent and striking they may be imprinted upon the soft pulpy paper in colors, and in such a manner as will insure the color sinking deep into and entirely penetrating the body of the paper. This is readily accomplished by means of a cylinder, similar to that above described, having upon its surface points set close to each other in lines forming the desired figures, and sufficiently elevated to penetrate the paper whilst it is yet in a soft pulpy state. These points are charged with ink of the required color, which is transferred (as the cylinder revolves) to the paper, into the body of which it penetrates. The holes made by the points are instantly closed by the pressure rollers, to which the paper is afterwards subjected, and the coloring is thus caused to penetrate entirely through the note, and consequently cannot be removed for the fraudulent purpose before mentioned.

NEW BOOKS.

STATE SOCIETY'S TRANSACTIONS.

We ought ere this to have rendered our thanks to Mr. B. P. Johnson, of Albany, for the volume of The Transactions of the State Agricultural Society, received in November. It is a very valuable book. Our friend, Wm. Bacon, Esq., has also sent us the Second Annual Report of the Secretary of the Massachusetts Board of Agriculture.

ROBERT MERRY'S MUSEUM AND PARLEY'S MAGAZINE.

We have a vivid recollection of the enthusiasm produced among juveniles of all ages, by the first appearance of the story-books of Peter Parley, and the periodicals which soon after followed them, from the same popular writer. These publications have not yet ceased to make their regular appearance before the public, and though they have ceased to attract by their novelty, Gilbert Go-Ahead and Uncle Hiram, etc., still present themselves as long ago. We do not see that they have at all deteriorated. In these well-illustrated pages, we still see the peculiar characteristics which then so widely distinguished them from anything before published. May they long continue to please and instruct the youth of this country!

A COMPLETE PRONOUNCING GAZETTEER OR GEOGRAPHICAL DICTIONARY OF THE WORLD. Edited by J. THOMAS, M.D., and T. BALDWIN, assisted by several other gentlemen. Philadelphia: J. B. Lippincott & Co. 1855, 2177 pages.

We have given this great work a careful examination, and see nothing in it that does not commend itself to general approval.

It is a pronouncing Dictionary, and the pronunciation of the names of places in the several countries is determined by eminent scholars, natives of each, or practically familiar with them, and is therefore quite reliable. The introduction, extending over 22 pages, is a concise, but yet full statement of the sounds of the letters of different modern European languages, and proves them to have come from hands quite competent to the task. This adds very much to the value of the work, and may be applied to the determination of sounds of words not found in this volume.

Under the different States, we have not only the natural and political features of the country, and other matters usually treated in such works, but objects of interest to tourists—forest trees, animals, history, etc.

In its statistics, the most recent information is given. Peale's Museum has disappeared from Philadelphia, and other stereotyped descriptions of divers places long since out of date, are omitted. We have looked in vain for a single error in those sections of country with which we are familiar. We are satisfied that no Dictionary so extensive as this, has been published in any country more worthy of general confidence; and we hope the enterprising publishers will receive as liberal a reward in their sphere, as we are sure has been earned by the learned and accomplished editors and assistants.

THE CONSTITUTIONAL TEXT-BOOK; a Practical and Familiar Exposition of the Constitution of the United States, and of portions of the Public and Administrative Law of the Federal Government. Designed chiefly for the use of Schools, Academies and Colleges. By FURMAN SHEPPARD. Philadelphia: Child & Peterson. 1855, 324 pages.

This volume contains a short history of the discovery and sentiment of the colonies, the articles of confederation, the constitution, etc., as described in the title. Its object is to instruct the youth of the country in this important branch of education. No one can doubt the great dearth of such books, and the consequent ignorance of the

masses on all these topics. To meet this want, this volume has been carefully prepared, and it is offered to the public in a form which strongly recommends it to a favorable reception.

STRAY LEAVES FROM THE BOOK OF NATURE. By M. SCHELE DE VERE, of the University of Virginia. New-York: G. P. Putnam & Co., 1855; 291 pages.

An entertaining, tasteful, sprightly, truthful, instructive volume, from the pen of a scholar. It opens with "Only a Pebble," and traces the pebble through various transformations into vegetable and animal life and beauty, in chapters, distinct and yet continuous. Its place is in every school library, Sunday-school and family, and in eac it will be read.

DICKENS' LITTLE FOLKS. 6 vols. New-York: Redfield.

These little volumes are selected from the larger books of this popular writer, and are got up especially for the young. The series consists of The Child-wife from David Copperfield, Little Nell from the Old Curiosity Shop, Little Paul and Florence Dombey from Dombey & Son, Oliver and the Jew Fagin from Oliver Twist, and Smike from Nicholas Nickleby. They form a capital series.

SABBATH EVENING READINGS OF THE NEW TESTAMENT; ST. JOHN. By REV. JOHN CUMMING, D.D., etc., etc. Boston: John P. Jewett & Co.; New-York: Sheldon, Lamport & Co. 1856. 464 pages.

Our opinion of Mr. Cumming is well known to our readers. The more we read of him, the more highly we regard his sound judgment and discrimination. His style is a model for works of this description.

A VISIT TO JUDEA, CHINA AND JAPAN, IN THE YEAR 1853. By BAYARD TAYLOR. New-York: G. P. Putnam & Co. 1855. 539 pages.

This writer is too well known and too highly appreciated to need any editorial notices. Those who can get these books of Mr. Taylor will of course have them. The present volume is not behind its predecessors in its style and topics, nor in its execution.

THE STABLE BOOK. Being a Treatise on the Management of Horses, in relation to Stabling, Grooming, Feeding, Watering, and Working; Construction of Stables, Ventilation, Stable Appendages, Management of the Feet, Management of Diseased and Defective Horses. By JOHN STEWART, Veterinary Surgeon, Professor of Veterinary Medicine in the Andersonian University, Glasgow. With Notes and Additions, applying it to American Food and Climate. By A. B. ALLEN, Editor of the *American Agriculturist*. With Illustrations. C. M. Saxton, New-York. 1856. 369 pages.

The author of this book was formerly a Professor of the Andersonian University of Glasgow. This institution and that of King's College, in London, are the only colleges in Great Britain, giving general instruction in science and literature, that support a professorship of veterinary science. Such instruction is given elsewhere only in special institutions. Some years since, Professor Stewart emigrated to Australia and devotes himself extensively to the rearing and caring for horses, cattle, and sheep. He has the reputation of a well-qualified and practical veterinarian, and his book has taken a high rank in his native country, as a plain, practical, and judicious treatise.

We regret that we have not in this country an institution for the thorough training of veterinary practitioners. Our Boston friends are making an effort of this kind under Dr. Dadd, who received his veterinary education abroad. We know of none educated in this country. The mode in which Mr. Allen was taught is given us by himself:—

"The horse, both theoretically and practically, has been a favorite study with me from childhood, and for the past ten years I have been more or less engaged in breeding and rearing them on my farm, and in breaking and fitting them for market. I had

also, in early life, during a residence of nearly two years in the north of Europe, the advantage of studying the stable economy of large military establishments." But the making of surgical instruments does not qualify one to use them, nor the compounding of medicines enable one to administer the proper remedies to the sick. The best groom and the best rider may know nothing of veterinary science. Anatomy, physiology, pathology, skill in surgery, etc., do not come by instinct, nor even by mere study. Dissections, practical surgery, etc., are essential. Hence we receive with caution all inexperience, as we do the absence of professional instruction, and especially when accompanied with personal assurance.

As to the book before us, we confess we do not quite like the tone of the few short comments of the American editor. In certain departments, none stand higher in our estimation than Mr. Allen. But in this department we doubt. The character of many of these short notes increases our doubt. The first specimen of editing that arrested our attention (page 24) did not strike us favorably. Mr. Stewart says that plank floors are objectionable in stables, because they are decomposed by the urine, and thus produce injurious gases, and also are made slippery, and because they are liable to get misplaced. Mr. Allen says that these objections do not exist to such floors here, because the climate is drier! Mr. Stewart recommends for horses having flat feet and kept in a straw-yard much exposed to wet, that they should be shod with leather soles, etc. Mr. Allen, assuming to know better than Mr. Stewart, says, page 131: "All this is of more than doubtful utility; and experience shows it to be at least useless in all cases and dangerous in many." Many of the American notes are of this description. Still, as nearly half the entire matter added in this American edition, consists of some four and a quarter pages of description of the stables of Mr. Gibbons and Mr. Pell, quite worthy of attention, and which add to the value of the work, we ought not to be too difficult. The work is a valuable one, and its reprint here is a service to humanity.

HEATHEN RELIGION, in its Popular and Symbolical Development. By Rev. JOSEPH B. GROSS. Boston, John P. Jewett & Co.; New-York, Sheldon, Lamport & Blakeman. 1856. 372 pp.

Mr. Gross has expended a vast deal of research in preparing this volume, and has collected together an amount of information in respect to mythology and idol worship, which exceeds that of any similar work within our knowledge. This renders the book very valuable. Another portion of the volume consists of the author's philosophy of religion, and this we do not consider of so great value. It furnishes abundant food for thought, but we do not always agree with his conclusions. He exalts idol worship too much, in our judgment, and attaches quite too little importance to any departure from the religion of the Bible. The author may not intend this—probably he does not—and yet we cannot but think there is such an influence over the mind of a confiding reader. Still we regard this as a very valuable work.

THE ONYX RING. By JOHN STERLING. With a Biographical Preface, by CHARLES HALE.

ST. GILDAS AND THE THREE PATHS. By JULIA KAVANAGH, Author of "Nathalie," etc.

THE BLUE RIBBONS. By ANNIE HARRIET DRURY.

These three small volumes are published by Whittemore, Niles & Hall, of Boston. They are all capital books for our young friends—books they would read with great interest, and not without an indirect but strong influence in favor of honesty, truth, and integrity. We heartily commend them.

WAGER OF BATTLE. A Tale of Saxon Slavery in Sherwood Forest. By HENRY W. HERBERT, Author of "Henry VIII. and his Six Wives," etc., etc. New-York: Mason Brothers. 1855.

This volume is descriptive of the manners, customs, and institutions of our ances-

tors, the Saxons and the Normans. It is, of course, a tale of chivalry, and stories of this class no man can write better than Herbert. It is beautiful in style, and is one of the most entertaining volumes ever published.

THE WONDERFUL PHIALS, and other Stories. Translated from the French. By ANNIE. New-York: M. W. Dodd. 1855. 323 pp.

This is a capital story-book. Twenty-one short stories are given, and they are very entertaining. It deserves a place in every good juvenile library, and will be highly prized by our young friends.

PLAIN TALK AND FRIENDLY ADVICE TO DOMESTICS, with Counsel on Home Matters. Boston: Phillips & Sampson. 1855. 214 pp.

This little work is somewhat akin to the preceding, turning its attention to persons rather than things, and illustrates the proper manner of preventing or curing many evils, and how, by good manners, fidelity, etc., to rise in the esteem of others, and to secure a more desirable station in society.

THE COMPLETE WORKS OF WILLIAM SHAKESPEARE. Martin & Johnson, New-York.

Two more double numbers of this beautiful edition of Shakespeare have been laid on our table. They are illustrated with four admirable engravings. This is the most splendid edition of this work which has appeared in this country, while it costs less than several other editions. Price, 25 cents a number; 50 cents a double number. It is to be complete in 40 numbers.

CROTCHETS AND QUAVERS; or Revelations of an Opera Manager in America. By MAX MARETZEK. New-York: S. French. 1855. 346 pp.

Mr. Maretzek has a high reputation as a conductor of an orchestra, and this book entitles him to a reputation as a letter-writer that many an experienced author might look up to with a fond but hopeless gaze. The letters are admirably done. The exposures of the secrets of the opera house, as curious if not as dreadful as those of the prison house, are just the thing for after-dinner, or any hour when one needs something to keep him awake. It is one of the most entertaining of books. It paints men —living men—not the imaginary beings of the novelist, but the men we meet every day, here in New-York, on Broadway; and there is about it an air of good humor, even when ill blood might easily be pardoned, which is really refreshing. We shall henceforth be inclined to take off our hat to Mr. Maretzek, every time we meet him.

MRS. FOLLEN'S FIRELIGHT STORIES.

Whittemore, Niles & Hall have laid on our table a beautiful set of these popular books for youth. They are put up in a beautiful form, containing six volumes, square 16mo. Price $1 50, or 25 cents each.

MRS. CROWEN'S AMERICAN LADY'S SYSTEM OF COOKERY; Comprising every variety of Information for Ordinary and Holiday Occasions. By Mrs. T. J. CROWEN, Author of "Every Lady's Book," of which over two hundred thousand copies have been sold. New-York: Thos. J. Crowen. 1855. 450 pp.

This is a subject that comes home to every household, and to all ages and sexes. He who improves the culinary processes of any family, promotes health and improves the temper, and therefore materially affects the amount of domestic happiness. Mrs. Crowen knows well how to do this, and in this volume she tells others how to do so fully and in very appropriate terms. We commend the book to the attentiou of all our readers.

NEW MUSIC.

We have from E. H. WADE, of Boston, the following vocal pieces, all good of this class, and several much above the average degree of merit: "Poor Old Jake;" "The

Happy Muleteer;" "There's Nought in Life;" "Shylie A'Vourneen;" "The Sea Nymph's Invitation;" and "Elsie, the Maid of the Mill."

Wm. Hall & Son have among their recent publications the Opera of William Tell, capitally arranged, but requiring some skill in the pianist. They have also a very simple arrangement of many of the airs.

Boardman & Gray's Pianos.—We have an instrument made by this enterprising house, capital in tone and beautiful in finish. "The Attachment" produces a very smooth and sweet subdued tone, with very protracted vibration.

List of Patents Issued

FROM TERMINATION OF PREVIOUS LIST TO DEC. 11.

G. W. Bishop, Brooklyn, improvement in marble sawing machines.

Ansel W. Porter, Little Falls, N. Y., improvement in hanging carriage bodies.

Hiram Abbott, Wakeman, O., improved method of upsetting tire, &c.

Chas. Rice, Boston, and S. H. Whorf, Roxbury, Mass., improvement in lasting and applying soles to shoes.

Sylvanus Sawyer, Fitchburgh, Mass., compound projectile.

Job Brown, Lawn Ridge, Ill., improvement in weighing attachment for faucets.

J. C. Day, Hackettstown, N. J., improved ring and gudgeons for bottle fastenings.

John Fouser, Philadelphia, improvement in supporting jacks.

L. B. Fisher, Branch Co., Mich., improvement in marble sawing.

Thaddeus Fowler, Waterbury, Ct., new method of separating pins.

John B. Hathaway, Millbury, Mass., improved rotary engines.

Eli Horton, Windsor Locks, Ct., improved lathe chuck.

W. B. Kimball, Peterborough, N. H., improved marble sawing machine.

Jean Pierrie Mollierre, Lyons, France, improved method of cutting boot and shoe uppers. Patented in France, Aug. 10.

V. P. Corbett, New-York, excluding dust from railroad cars.

Ransom Cook, Shelburne Falls, Mass., new method of boring implements.

Samuel Krauser and Christian Ritter, Reading, Pa., improved water meter.

Wm. C. Chipman, Sandwich, Mass., improvement in marble sawing.

Michael Bomberger, Hummelstown, Pa., new method of hanging window shades.

R. L. Nelson, Ocala, Florida, self-feathering adjusting tide wheel.

T. B. Markillie, Winchester, Ill., improvement in corn planters.

Joseph Morse, Woonsocket, R. I., improvement in throstle machines.

E. D. Curtis, Mt. Morris, N. Y., improvement in seeding machines.

Cornelius R. Wortendyke, New-York, raising ice from rivers, etc.

Nath. S. Saxton, Riverhead, N. Y., improved machines for adding numbers.

Barclay A. Satterthwait, Lima, O., new method of preparing artificial teeth.

Thos. Chope, Detroit, Mich., improvement in attaching shafts to axles.

D. W. C. Sanford, Cincinnati, O., improvement in refrigerators.

Loren J. Wicks, Paterson, N. J., improvement in straw cutters.

H. N. Sherman, Birmingham, Conn., new method of forming heads on bedstead screws.

Alfred E. Smith, Bronxville, N. Y., improvement in securing shafts to axles.

Geo. W. Hubbard, Middleton, Ct., improvement in marble sawing machines.

Chas. H. Johnson, Boston, improvement in Argand-gas burners.

Rudolphus Kinsley, Lynchburgh, Va., improved tobacco presses.

James A. Woodbury, Winchester, Mass., improvement in planing machines.

Chas. F. Warren, Malden, Mass., improvement in marble sawing machines.

Samuel Wetherill, Bethlehem, Pa., improved processes for making zinc white.

G. W. Bigelow, New-Haven, Conn., improvement in cutting teeth of gear wheels.

J. H. A. Blackmann, Ronsdorf, Prussia, improvement in locks.

L. S. Chichester, New-York, improvement in cotton gins.

D. W. Clark, Bridgeport, improvement in double acting pumps.

Edward Pierre Fraissinett and Henri Emile Roboul, of Route d'Orleans, Montrouge, Paris, France, for ticket holders. Patented in France Feb. 2, 1855.

T. Henderson, Lowell, machine for printing yarns and cloths.

T. P. Howell and N. F. Blanchard, Newark, improvement in treating leather for enameling.

D. W. Hughes, New-London, Mo., improved method of attaching tops to seats of carriages.

A. A. Marcellus, New-York, improvement in potato diggers.

Jos. McCord, Philadelphia, policemen's rattles.

C. A. McEvoy, Richmond, Va., improvement in railroad station indicators.

John Phin, Rochester, improvement in gun locks.

Wm. F. & Chas. J. Provost, Selma, Ala., improvement in cotton presses.

C. Rice, Boston, and S. H. Whorp, Roxbury, Mass., improved machine for preparing leather for the manufacture of boots and shoes.

J. Reilly, Hart Prairie, Wis., improvement in harvesting machines.

F. Noette and A. Schmidt, Brooklyn, improved marble sawing machines.

M. W. St. John and I Brown, Leonardsville, N. Y., improved street-sweeping machines.

Gerard Sickles, Brooklyn, improvement in coal sifters.

G. H. Thomas, Kingston, Mass, improved method of inserting tubes in evaporating pans, etc.

L. Young, New-York, improvement in revolving measuring wheels.

H. Carsley, Lynn, assignor to himself and E. Brown, of same place, improvement in nutmeg graters.

F. Drew, South Boston, assignor to himself and S. S. Gray, of same place, improvement in lifting jacks.

L. Fingor, Boston, assignor to himself and L. Schell, of same place, filtering faucet.

C. W. Van Vilet, Fishkill Landing, assignor to C. Parker, Meriden, Conn., improvement in mill grinding coffee, etc.

E. Harmon, Washington, D. C., improved envelopes.

W. O. Hickok, Harrisburgh, improvement in mills for grinding apples.

Reuben W. Oliver, East Aurora, N. Y., improvement in road scraper.

John Allender, of New-London, Ct., for balance for detecting spurious coin.

Dennis S. Blue, of Fort Seneca, Ohio, for improvement in blacksmith's striker.

Pliny E. Chase, of Philadelphia, Pa., for improvement in steam heating apparatus.

Thomas H. Corbett, of Brooklyn, N. Y., for improvement in belt coupling.

H. H. Dennis, of Steam Mill, Pa., for improvement in fences.

Joel P. Heacock, of Marlborough, Ohio, for improvent in drilling and screw cutting machines.

Joel P. Heacock, of Marlborough, Ohio, for improvement in cooper's tools.

Peter H. Jackson, of New-York, for improvement in cat head anchor stoppers.

L. B. Jillson and George Sparhawk, of Lewiston Me., for improvement in bag looms.

John A. Krake, of Alden, N. Y., for improvement in the method of hanging the screens of winnowing machines.

Joseph Kleeman, of the city of Meissen, Germany, for improvement in the preparation of umbrella sticks, &c., of rattan.

Alfred Krupp, of Essen, Prussia, for improvement in cannon. Patented in France, December 16, 1847.

John S. Lewis, of Athol, Mass., for improvement in the mode of cutting the uppers of boots.

Leonard S. Maring of Fall River, Mass., for improvement in attaching casters to trunks.

Jean Pierre Molliere, of Lyons, France, for improvement in machines for rasping and dressing the heels and soles of boots and shoes. Patented in France, January 5, 1855.

Jean Louis Rolland, of Paris, France, for improvement in ovens for baking bread and other ailments. Patented in France, June 30, 1851.

George W. Stedham, of Vienna, N. J., for improvement in sewing machines.

Cyrus A. Swett, of Boston, Mass., for improved printing press.

Samuel E. Tomkins, of New-York, for improvement in metalic saddle trees for harness.

Nathaniel Waterman, of Boston, Mass., for improvement in feet-warmers.

Wm. Bennett, of Brooklyn, N. Y., assignor to the Union Indian Rubber Lamp Company, of New-York, for improvement in fluid lamps.

DESIGN.—James O. Morse, of New-York, and J. W. Adams, of Lexington, Kentucky, for design for steam tube and hot air covers.

Thomas Batty, of Brooklyn, N. Y., for improvement in suspending ship yards.

Erastus B. Bigelow, of Boston, Mass., for improvement in cutting pile fabrics.

E. W. Bullord, of Hardwick, Mass., for improved mode of hanging window sashes.

Daniel Campbell, of Washington, D. C., for improvement in military saddles.

Thomas A. Chandler, of Rockford, Ill., for improvement in making plow mould boards.

John A. Cole, of Washington, D. C., for improvement in machines for sawing out tapering blocks of marble.

Alonzo R. Dinsmoor, and Levi J. Bartlett, of Salisbury, N. H., for improved instrument for chamfering the edges of shoe soles, &c.

Thomas A. Elden, of Westbrook, Me., and Wm. Thorn, of Hollisten, Mass., for improvement in the arrangement of flues and dampers of cooking apparatus.

Joseph T. England of Baltimore, Md., for improvement in railroad car coupling.

Peter Fairbain, of Leeds, and John Hargrave, of Kirkstall, in the county of York, for improvement in wool-combing machines. Patented in England, Nov. 6, 1852.

Henry Forncrook, of Elbridge, N. Y., for improvement in feet warmers.

Joseph Francis, of New-York, for improvement in military wagons.

Samuel H. Gilman, of New-Orleans, La., for improvement in bagasse furnaces.

Samuel Hamilton jr., of Tolland, Mass., for improved burglar's alarm.

Jesse W. Hatch, of Rochester, N. Y., for improvement in the machine for cutting out boot and shoe soles.

Horace L. Hervey, of Quincy, Ill., for improved burglar's alarm.

George A. Howe, of Worcester, Mass., for improvment in hand cotton pickers.

Matthias Keller, of Philadelphia, Pa., for improvement in cutting the fronts and back of violins.

Edward N. Kent, of New-York, for improvement in amalgamators.

Edward Kershaw, of Boston, Mass., for improvement in locks.

Hosea Lindsay, of Ashville, N. C., for improvement in pumps.

Timothy Bailey, Ballston Spa, improvement in knitting machines.

Alexander Barns, Ashtabula, improvement in mop heads.

Thos. R. Markillie, of Winchester, Ill., for improvement in spoke machines.

G. M. Moore and J. Newton, of Watertown, Ct., for improvement in machines for scouring knives.

J. H. Pomery, of Bloomington, Ill., for improvement in locks.

Isaac Rehn, of Philadelphia, Pa., for improved photographic bath.

James H. Sampson, of Grafton, Mass., for improvement in boot trees.

Charles Schinz, of Camden, N. J., for self-regulating hot blast for furnaces.

Nathan Simons, of Providence, R. I., for improvement in cloth stretching rollers.

John Tremper, of Philadelphia, Pa., for improved means of connection between regulator valve and governor's stem.

Daniel E. True, of Lake Village, N. H., for improved blind fastener.

Levi Van Hoeson, of New-Haven, Ct., for improvement in machines for paring and slicing apples.

Richard Vose, of New-York, for improvement in quartz crushing machines.

Moses D. Wells, of Morgantown, Va., for improvement in hand seed sowers.

R. C. Wrenn, of Covington, Ky., for improvement in machines for preparing cotton seed for planting.

John H. Gatiss, of Franklinville, Pa., assignor to Abraham Edwards, of Towanda, Pa., for improvement in water wheels.

John Taggart, of Roxbury, Mass., assignor to himself, and Vernon Brown, of Boston, Mass., for improved machines for channeling stone.

Charles C. Tolman, of Shelburne Falls, Mass., assignor to James Sargent and Dan P. Tucker, of same place., for gimblet.

Major B. Clarke, of Newman, Ga., for improvement in machinery for opening and feeding cotton to the gin.

Israel Amiss, of Philadelphia, Pa., for improved application of embossed veneers.

James Baxendale, of Providence, R. I., for improvement in machinery for folding and measuring cloth.

Henry E. Chapman, of Albany, N. Y., for improvement in boot and shoe peg cutters.

Charles T. Close, of New-York, N. Y., for improved fountain ink-stand.

Josephus Echols, of Columbus, Ga., for improvement in water gauges for steam boilers.

John S. Gallaher, Jr., and John W. Smith, of Washington, D. C., for improvement in gas apparatus.

P. G. Gardiner, of New-York, N. Y., for improvement in railroad car springs.

Gottlieb Graessle, of Hamilton, O., for improvement in tile roofing.

Sheldon S. Hartshorn, of Allensville, Ind., for improvement in buckles.

Jno. K. Harris, of Orange, Conn., for improvement in machines for raking and loading hay.

Benj. Hinkley, of Troy, N. Y., for improvement in bedsteads.

F. A. Jewett, of Abington, Mass., for improvement in the mode of attaching extinguishers to lamps.

Henry C. Jones, of Newark, N. J., for improvement in locks for freight cars.

James J. Johnson, of Alleghany City, Pa., for improvement in corn-shellers.

Gilbert D. Jones, of Jersey City, N. J., for improvement in sand-paper making machines.

Jean Pierre Molliere, of Lyons, France, for improvement in machines for cutting out, punching and stamping the soles and heels of boots and shoes. Patented in France, July 22, 1853.

Robert Prince, of Lowell, Mass., and Ambrose Lovis, of Boston, Mass., for improvement in processes for calico printings.

Geo. T. Pearsall, of Apalachin, N. Y., for improvement in sawing marble, etc., in taper form.

Joel W. Pettis, of Hillsdale, Mich., for improvement in packing pistons for steam-engines.

Atchison Queal, of Plymouth, N. Y., for impact water wheel.

Shepherd W. Reed, of Berkshire, N. Y., for improvement in carriage hubs.

Charles Rice, of Boston, Mass., and Sylvanus H. Whorf, of Roxbury, Mass., for improvement in machines for cutting articles from leather.

Isaac M. Singer, of New-York, N. Y., for improved machine for carving wood, etc.

Jeremiah P. Smith, of Hummelstown, Pa., for improvement in corn-shellers.

E. D. Leavitt, Jr., of Lowell, Mass., for improvement in slide valve for steam engines.

Francis Taylor, of New-York, N. Y., for improved piano-forte action.

Guilliame Henri Talbot, of Boston, Mass., for improvement in auger handles. Patented in England, Aug. 25, 1855.

Amasa S. Thompson, of Albion, Pa., for improvement in cutting cloaks.

Daniel Treadwell, of London, England, for improved manufacture of cannon.

Wm. M. Welling, of Brooklyn, N. Y., for improvement in devices for bleaching ivory.

Edward Weissenborn, of New-York, N. Y., for improvement in chain-making machines.

C. D. Wright, of Fort Atkinson, Wis., for improvement in rotary pumps.

John S. Martin, of Boston, Mass., for improvement in mosquito curtains.

Amos D. Highfield, of Philadelphia, assignor to himself and Wm. H. Harrison, of the same place, for method of adjusting circular saws obliquely to their shafts.

Jno. W. Haggard and Geo. Bull, of Bloomington, Ill., assignors to Bull, Haggard and Newsteter, of same place, for improvement in harvester rakes.

Wm. W. Wade, of Springfield, Mass., assignor to Wade and Burnham, of same place, for improvement in variable cut-off gear for steam engines.

Daniel Moore, assignor to Geo. S. Cameron, of Charleston, S. C., James H. McWilliams, of New York, N. Y., and Daniel Moore, aforesaid, for improved machine for rubbing types.

Re-issues.—Jos. Guild, of Cincinnati, Ohio, for improvement in mortising machines; Patented Nov. 30, 1852.

Samuel Rockafellow, of Coatsville, Pa., for improvement in reaping and mowing machines. Patented July 3, 1855.

Designs.—Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for design for parlor stoves to burn wood.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for design for parlor stoves to burn coal.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for designs for six-plate box stoves.

Conrad Harris and Paul W. Zoiner, of Cincinnati, O., for designs for cooking stoves.

Jonathan C. Brown, of Bristol, Conn., for design for clock frames.

Enoch Woolman, of Damaskville, O., for design for strap hinges.